CP2215

User Manual

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CHRISTIE®

NOTICES

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REGULATORY

The product has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the product is operated in a commercial environment. The product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the product in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.
CAN ICES-3 (A) / NMB-3 (A)

이 기기는 업무용 **(A** 급 **)** 으로 전자파적합등록을 한 기기이오니 판매자 또는 사용자는 이점을 주의하시기 바라며 **,** 가정 외의 지역에서 사용하는 것을 목적으로 합니다 **.**

GENERAL

Every effort has been made to ensure accuracy, however in some cases changes in the products or availability could occur which may not be reflected in this document. Christie reserves the right to make changes to specifications at any time without notice. Performance specifications are typical, but may vary depending on conditions beyond Christie's control such as maintenance of the product in proper working conditions. Performance specifications are based on information available at the time of printing. Christie makes no warranty of any kind with regard to this material, including, but not limited to, implied warranties of fitness for a particular purpose. Christie will not be liable for errors contained herein or for incidental or consequential damages in connection with the performance or use of this material.
The product is designed and manufactured with high-quality materials and components that can be recycled and reused.

This symbol **means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from regular waste. Please dispose of the product appropriately and according to local regulations. In the European Union, there are separate collection systems for used electrical and electronic products. Please help us to conserve the environment we live in!**
Canadian manufacturing facility is ISO 9001 and 14001 certified.

GENERAL WARRANTY STATEMENTS

For complete information about Christie's limited warranty, please contact your Christie dealer. In addition to the other limitations that may be specified in Christie's limited warranty, the warranty does not cover:

a. **Problems or damage occurring during shipment, in either direction.**
b. **Projector lamps (See Christie's separate lamp program policy).**
c. **Problems or damage caused by use of a projector lamp beyond the recommended lamp life, or use of a lamp supplied by a supplier other than Christie.**
d. **Problems or damage caused by combination of a Product with non-Christie equipment, such as distribution systems, cameras, video tape recorders, etc., or use of a Product with any non-Christie interface device.**
e. **Problems or damage caused by the use of any lamp, replacement part or component purchased or obtained from an unauthorized distributor of Christie lamps, replacement parts or components including, without limitation, any distributor offering Christie lamps, replacement parts or components through the internet (confirmation of authorized distributors may be obtained from Christie).**
f. **Problems or damage caused by misuse, improper power source, accident, fire, flood, lightening, earthquake or other natural disaster.**
g. **Problems or damage caused by improper installation/alignment, or by equipment modification, if by other than Christie service personnel or a Christie authorized repair service provider.**
h. **Problems or damage caused by use of a Product on a motion platform or other movable device where such Product has not been designed, modified or approved by Christie for such use.**
i. **Problems or damage caused by use of a projector in the presence of an oil-based fog machine.**
j. **For LCD projectors, the warranty period specified applies only where the LCD projector is in "normal use." "Normal use" means the LCD projector is not used more than 8 hours a day, 5 days a week. For any LCD projector where "normal use" is exceeded, warranty coverage under this warranty terminates after 6000 hours of operation.**
k. **Image retention on LCD flat panels.**
l. **Failure due to normal wear and tear.**

PREVENTATIVE MAINTENANCE

Preventative maintenance is an important part of the continued and proper operation of your product. Please see the Maintenance section for specific maintenance items as they relate to your product. Failure to perform maintenance as required, and in accordance with the maintenance schedule specified by Christie, will void the warranty.

Table of Contents

Installation and Setup 1

Safety Precautions 1
AC/Power Precautions 2
Power Cords and Attachments 2
Lamp Precautions 3
Projector Components - Front 3
Projector Components - Rear 4
Position the Projector 4
Adjust Tilt and Level the Projector 5
Install the Touch Panel Controller 5
Connect the Exhaust Duct 6
Install the Lens 7
Install the Lamp 8
Connect Devices to the Projector 10
Projector Connections and Status LEDs 10
Connect the Projector to a Computer 12
Connect Devices to the 3D Terminal 12
Connect Devices to the GPIO Port 12
Connect Power 14
Turn the Projector On 15
Log On to the Projector 15
Activate Marriage 16
Add the Projector to a Network 16
Add the Lamp Information to the Lamp History 17
Turn the Lamp On 17
Align the Lamp with LampLOC 17
Adjust the Image to Fit Your Screen 18
Play Content 19
Unencrypted Content 19
Encrypted Content 19

Adjust the Image 21

Correct Keystone Effect 21
Correct Vignetting 21
Adjust Vertical Boresight Angle 22
Adjust Horizontal Boresight 23

Adjust DMD Convergence 25
Align the Fold Mirror 25
Color Calibration 26
Screen Masking 26
Calibrate Screen Brightness (fL) 27

Access the Projector and Run Diagnostics 29

The Touch Panel Controller 29
The Main Screen 29
Log On to the Projector 30
LED Status Indicators 30
View the Status of Projector Components 31
Respond to Alarms 32
Run the Projector Interrogator 32
View SMPTE Errors 33
Clear SMPTE Errors 33
Retrieve System Logs 33
Run a Server Test 33
Turn the Projector Off 34

Manage the DLP 35

Reset the DLP 35
Run a DLP Self Test 35
Download an ICP Certificate 35
Download an LD Certificate 35
Disable the ICP Signature Test 36
Indicate an LD is Installed 36

Work with Channels 37

Create a New Channel 37
Activate a Channel 39
Restore Default Channel Settings 39
Change the Channel Icon 40
Add or Remove Preferred Channels from the Preferred Channels Pane 40

Manage Lamp Information. 41

Create a New Lamp File 41
Modify an Existing Lamp File 41
Enable or Disable LiteLOC on a Lamp File 42
Adjust Lamp Power 42

Change the Lamp Power Percentage 42
View Lamp Information 42
Receive an Alarm when a Lamp Reaches Its Expiry Date 42
Add a Lamp to the Lamp History 43
Verify Current Lamp Intensity 43

Manage Projector Setting Files 45

Create a Source File 45
Modify a Source File 45
Create a Screen File 45
Modify a Screen File 46
Create a MCGD File 46
Modify a MCGD File 47
Create a TCGD File 47
Modify a TCGD File 47
Create a New ILS File 48
Edit an Existing ILS File 48
Enable Automatic ILS Adjustment on a Channel 48
Reset ILS File Settings 49
Add a Lens Serial Number 49
Enable Automatic ILS on a Lens 49
Reset the Lens Position on Projector Startup 49
Complete a Full Lens Calibration 49
Reset the ILS and the Lens Position 50

Work with the Scheduler 51

Schedule the Projector to Turn On or Off 51
Edit a Scheduled Event 51
Delete a Scheduled Event 52
Delete All Scheduled Events 52
Turn the Scheduler Off 52

View and Modify Projector Settings 53

Set Projector and TPC Preferences 53
Adjust Projector Time Settings 53
Modify Projector Communication Settings 54
Add a Network Device 54
Access a Network Device 55
Calibrate the Internal Light Meter 55

View the Microsoft Windows Task Manager 55
View the Microsoft Windows Computer Management Console 55
View Microsoft Windows Explorer 56
View the Microsoft Network Connections Window 56
View Projector Information 56
Record the Lens Serial Number 56

Manage User Accounts 57

User Access Permissions 57
Add a User Account 57
Change a User Account Password or Permissions 57
Delete a User Account 58

Backup, Restore, and Upgrade Projector Files 59

Add an Upgrade File 59
Remove an Upgrade File 59
Install an Upgrade 59
Back up Projector Settings and Information 60
Restore a File 60
Restore Factory Default Settings 60
Move Files to the Projector 61
Delete Projector Files 61

Test Patterns 63

Add or Remove Test Patterns from the Preferred Test Patterns Pane 63
Turn a Test Pattern On or Off 63
Display a Full Screen Test Pattern 63

View 3D Content 65

Display Requirements 65
3D Sync Terminal PIN Map 65
Hardware Setup 66
Create a High Frame Rate 3D File 66
Edit the Default 3D Lamp File 68
Define a Measured Color Gamut Data File 68
Edit the 3D Flat 1998 x 1080 Channel 68
Edit the 3D Scope 2048 x 858 Channel 69
Display 3D Diagnostic Test Patterns 70
Verify 3D Cinema Content 70

Troubleshooting 71

Projector Functionality 71
Lamp Functionality 72
Display Issues 72

Maintenance 75

Inspect Ventilation 75
Check the Coolant Level 75
Clean the Radiator Filter 76
Inspect the Lamp 77
Inspect and Clean Optics 77
Clean the Lens 78
Replace the Lamp 78
Remove the Existing Lamp 79
Install the New Lamp 80
Inspect the Card Cage Filter 82
Cleaning a Washable Filter 82
Replace the Lens 83

Specifications 85

Display 85
Panel Resolution and Refresh Rate 85
Achievable Brightness (Measured at Screen Center) 85
Achievable Contrast Ratio 85
Color and Gray Scale 85
White Point 86
Gamma 86
Control Signal Compatibility 86
Ethernet Port 86
RS232-PIB 86
RS232-ICP 87
GPIO Terminal 87
SCCI Terminal 87
3D Terminal 88
USB 1 Terminal 88
USB 2 Terminal 88
MALM Terminal 88
Touch Panel Controller 89
Power Requirements 89

AC Input (A) 89
UPS AC Input (B) 89
Lamp 90
Physical Specifications 90
Regulatory 91
Safety 91
Electro-Magnetic Compatibility 91
Environmental 91
Certification Approvals 91
Environment 92
Operating Environment 92
Non-Operating Environment 92
Accessories 93
Standard (sold with product) 93
Accessories 93

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Installation and Setup

This manual is intended for professionally trained operators of Christie high-brightness projection systems. These operators are qualified to replace the lamp and air filter, but should not attempt to install or service the projector.

Only accredited Christie technicians who are knowledgeable about the hazards associated with high-voltage, ultraviolet exposure, and the high temperatures generated by the projector lamp are authorized to assemble, install, and service the projector. In addition, only Christie accredited personnel are authorized to perform security procedures such as marriage.

This section provides information and procedures for positioning and installing the projector.

Safety Precautions

When installing the projector, observe these important safety rules to avoid personal injury or damage to the projector:

⚠DANGER

When accessing a restricted access location for projector service or maintenance, avoid exposure to the projector beam path by making sure to either:

- Turn the projector power off and disconnect the projector from AC power
- Shutter the lamp to avoid emissions from the front aperture

Failure to comply results in death or serious injury.

⚠WARNING

- Never look directly into the projector lens or at the lamp. The extremely high brightness can cause permanent eye damage. For protection from ultraviolet radiation, keep all projector housings intact during operation. Protective safety clothing and safety goggles are recommended during servicing. Failure to comply could result in death or serious injury.
- FIRE HAZARD! Keep hands, clothes, and all combustible material away from the concentrated light beam of the lamp. Failure to comply could result in death or serious injury.

⚠CAUTION

Position all cables where they cannot contact hot surfaces or be pulled or tripped over. Failure to comply could result in minor or moderate injury.

NOTICE

This projector must be operated in an environment that meets the operating range specification. See *Operating Environment* on page 92.

AC/Power Precautions

⚠WARNING

- Use only the AC power cord that is provided with the projector. DO NOT attempt operation if the AC supply is not within the specified voltage and power range. Failure to comply could result in death or serious injury.
- As a safety feature the projector is equipped with a three-wire plug with a third (grounding) pin. If you are unable to insert the plug into the outlet, contact an electrician to have the outlet replaced. DO NOT defeat the safety purpose of the grounding-type plug. Failure to comply could result in death or serious injury.
- DO NOT attempt operation if the AC supply is not within the rated voltage range, as specified on the license label. Failure to comply could result in death or serious injury.
- Disconnect projector from AC before opening any enclosure. Failure to comply could result in death or serious injury.
- The dedicated earth wire can only be installed by a Christie accredited service technician or an electrician. The protected earth wire must be green/yellow 12 AWG minimum.

⚠CAUTION

- DO NOT allow anything to rest on the power cord. Locate the projector where the cord cannot be damaged by persons walking on it or objects rolling over it. Never operate the projector if the power cable appears damaged in any way. Failure to comply could result in minor or moderate injury.
- DO NOT overload power outlets and extension cords as this can result in fire or shock hazards. Failure to comply could result in minor or moderate injury.
- Only qualified service technicians are permitted to open projector enclosures and only if the projector is disconnected from AC power. Failure to comply could result in minor or moderate injury.

Power Cords and Attachments

⚠WARNING

A power cord rated for your region is provided with each projector. Make sure that you are using a power cord, socket, and power plug that meets the appropriate local rating standards. Use only an AC power cord recommended by Christie. DO NOT attempt operation if the AC supply and cord are not within the specified voltage and power range. Failure to comply could result in death or serious injury.

NOTICE

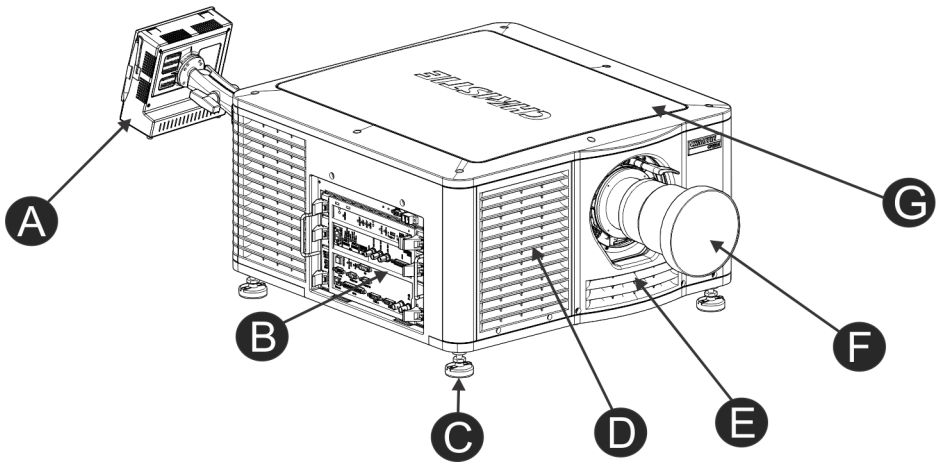
Use only the attachments and/or accessories recommended by Christie. Use of others may result in the risk of fire, shock and personal injury

Lamp Precautions

DANGER

- EXPLOSION HAZARD! Wear authorized protective safety gear whenever the lamp door is open! Never attempt to remove the lamp directly after use. The lamp is under significant pressure when hot and cold, and may explode, causing personal injury and/or property damage. Failure to comply results in death or serious injury.
- Any lamp used in the projector is under high pressure and must be handled with great care at all times. Lamps may explode if dropped or mishandled. Failure to comply results in death or serious injury.
- Never open the lamp door unless you are wearing protective clothing such as that included in a Christie Protective Clothing Safety Kit (P/N: 598900-095). Recommended protective clothing includes, but may not be limited to a polycarbonate face shield, protective gloves, and a quilted ballistic nylon jacket or a welder's jacket. Christie's protective clothing recommendations are subject to change. Any local or federal specifications take precedence over Christie recommendations. Failure to comply results in death or serious injury.
- Lamp may explode causing bodily harm or death. Always wear protective clothing whenever lamp door is open or while handling lamp. Make sure those within the vicinity of the projector are also suited with protective clothing. Never attempt to access the lamp while the lamp is on. Wait at least 15 minutes after the lamp turns off before powering down, disconnecting from AC and opening the lamp door. Failure to comply results in death or serious injury.

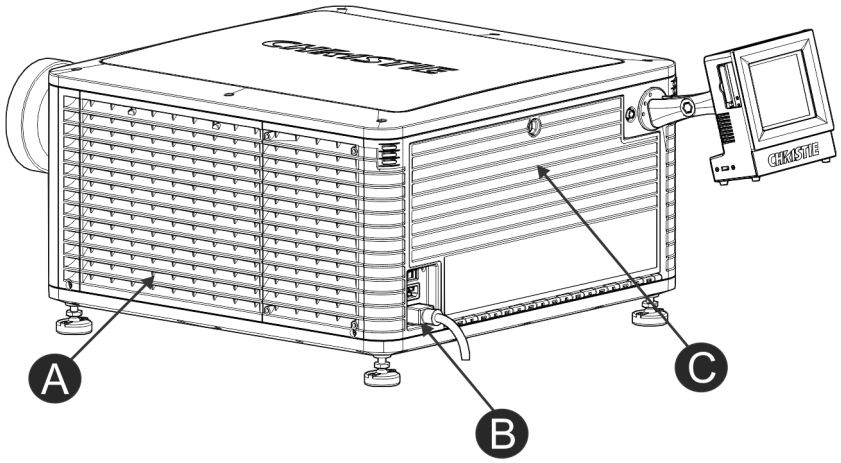
Projector Components - Front



A	Touch Panel Controller (TPC) A touch-sensitive screen used to control the projector. The TPC can remain mounted on the projector or it can be wall mounted.
B	Communications Panel External devices are connected here.
C	Adjustable Feet Turn the adjustable feet to increase or decrease the projector height. See *Adjust Tilt and Level the Projector* on page 5.

D	Air Filter Cover and Air Filter Located behind the air filter cover is a replaceable air filter. The air filter filters the intake air before it begins circulating in the front compartment to cool the main electronics.
E	Air Intake
F	Projector Lens See *Accessories* on page 93 for a list of available lenses.
G	Top Lid

Projector Components - Rear



A	Service Access Door
B	Power Cord and AC Receptacle
C	Lamp Access Door

Position the Projector

NOTICE

- Two people are required to safely lift and install the projector.
- Complete a lamp adjust whenever you move or level the projector or replace the lamp.

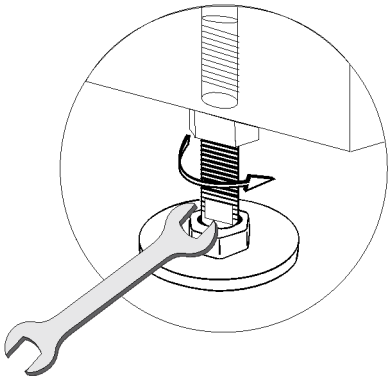
1. If you are installing the projector in the optional rack stand (P/N 108-416102-XX) follow the instructions provided with the rack stand to install it.
2. Position the projector so it is centered and parallel with the theatre screen. If space is limited, aim the projector slightly off-center and use lens offset to center the image on the screen.

Adjust Tilt and Level the Projector

The front-to-back and side-to-side tilt of the projector must not exceed 15 degrees.

1. Loosen the lock nut with a 3/4 in. or 19mm wrench.
2. Turn the adjustable feet on the bottom of the projector clockwise or counter-clockwise 1/8th of a turn at a time to move the projector up or down.

   When adjusting two or more feet at once, always adjust them the same amount. This keeps equal weight distribution on all feet for stability.

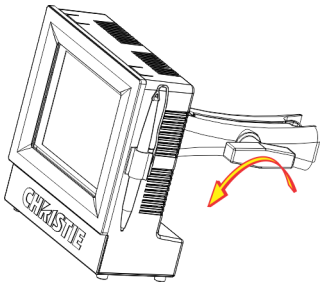


3. Adjust the horizontal position of the projector.
4. Verify that the image is centered and parallel with the top of the screen. If additional adjustments are required, repeat steps 1 and 2.
5. Adjust lens offset, rather than extra projector tilt, if vignetting is not observed.

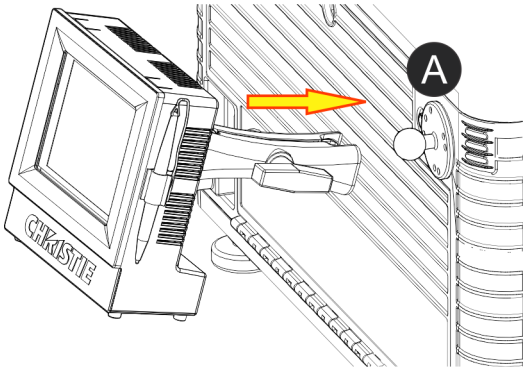
Install the Touch Panel Controller

For more information about the touch panel controller (TPC), see *The Touch Panel Controller* on page 29.

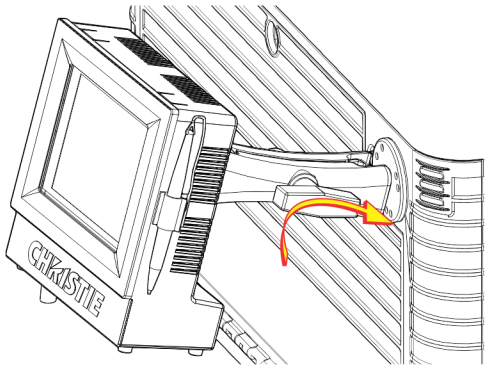
1. Loosen the mounting arm on TPC.



2. Fit the TPC mounting arm over the ball joint (A) located on the rear panel of the projector.



3. Tighten the mounting arm until it fits tightly on the ball joint.



4. Connect the cable from the TPC to the connector located on the projector rear panel.
5. Tilt the TPC to adjust the viewing angle.

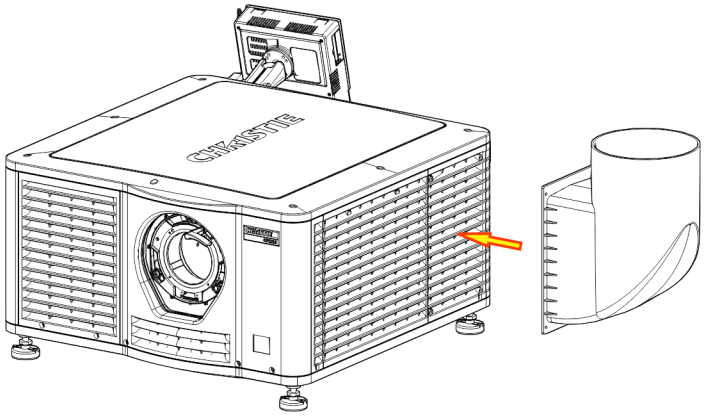
Connect the Exhaust Duct

You must install the optional duct (P/N: 119-103105-xx) if an air volume of 9,000 BTU (per hour) cannot be ventilated from the room in which the projector is installed.

When using an external duct, the duct must include a heat extractor and blower that maintains a minimum of 450 cubic feet per minute (CFM) at the projector exhaust opening when the projector is operating at 25°C at an elevation of 914 meters (3,000 feet) or less.

Add an extractor or a booster if there is insufficient airflow. Do not mount the extractor on the projector as this may introduce some vibration into the image.

1. Align the duct with mounting holes on the side of the projector.

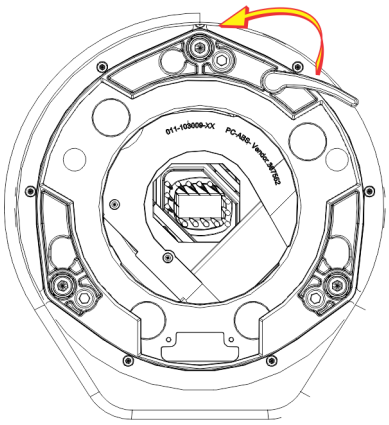


2. Hold the duct in position and secure it to the projector with 4 M5 screws.

Install the Lens

The lens seals the projection head, preventing contaminants from entering the main electronics area. Do not operate the projector without a lens installed. Install a lens plug when you install or transport the projector.

1. Move the lens clamp on the front of the projector to the open position.

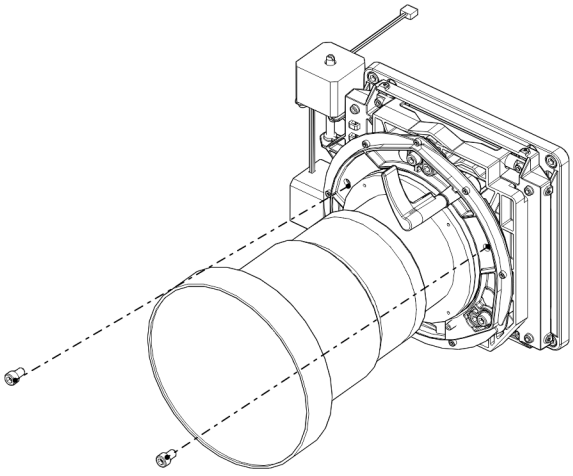


2. Position the lens so the lens retaining ring mounts align with the lens mount.
3. Remove the lens caps from the front and rear of the lens.

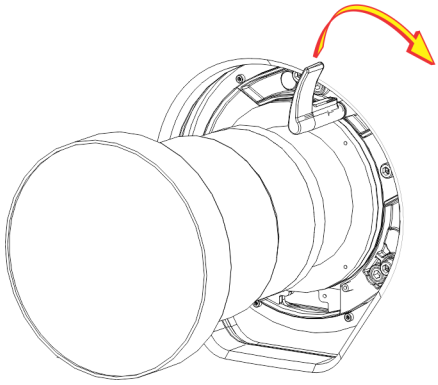
NOTICE Lens caps must be removed or they can melt and damage the lens.

4. Insert the lens straight into the lens mount opening without turning.

   Magnets inside the lens mount help position the lens.
5. Insert and tighten the 2 lens mount hex screws shipped separately with the projector.



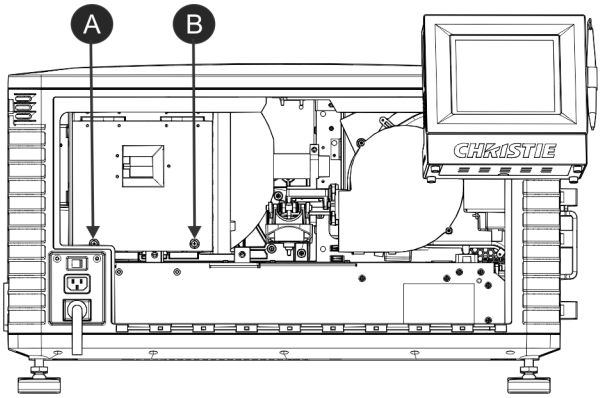
6. Move the lens clamp to the locked position.



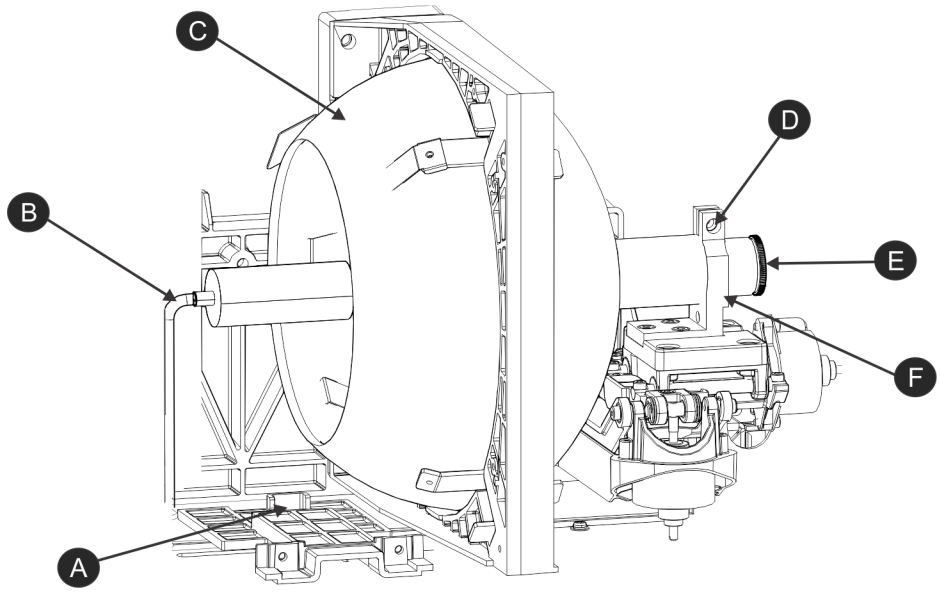
Install the Lamp

DANGER This procedure should only be performed by a Christie accredited technician. High-pressure lamp may explode if improperly handled. Always wear approved protective safety clothing whenever the lamp door is open or when handling the lamp. Failure to comply results in death or serious injury.

1. If the projector is operating, turn it off and allow it to cool a minimum of 15 minutes.
2. Turn the breaker switch for the projector off.
3. Disconnect the projector from AC power.
4. Put on your protective clothing, face shield, and gloves.
5. Insert the key in the lamp door lock, turn the key, and open the lamp door.
6. Loosen the 2 thumbscrews (A and B) and open the lamp access door.



7. Loosen the cathode screw (D) with the 5 mm hex key attached to the lamp door.



A	Anode Terminal
B	Anode Wire
C	Reflector
D	Cathode Screw
E	Cathode Nut
F	Cathode Clamp

8. Install the lamp:

⚠CAUTION

Handle the lamp by the cathode/anode end shafts only, never the glass. DO NOT over-tighten. DO NOT stress the glass in any way. Check leads. Make sure the anode (+) lead between the lamp and igniter is well away from any projector metal, such as the reflector or fire wall. Failure to comply could result in minor or moderate injury.

a. Remove the tape from the ends of the protective case.

b. Remove the plastic packing material from the lamp.

c. Remove the cathode nut from the lamp before removing it from the case.

d. Hold the anode end of the new lamp in your left hand and angle it up through the hole in the back of the reflector assembly.

e. Insert your right index and middle finger through the back of the reflector and guide the lamp onto the cathode clamp. Be careful not to hit the lamp against the reflector.

f. Hand-tighten the cathode nut (E). Make sure the smooth portion of the nut is against the cathode clamp.

g. Tighten the cathode screw (D) with a hex key.

h. Align the ring terminal on the anode wire (B) with the mounting position, ensuring the crimped side of the wire is facing out.

i. Tighten the anode screw.

j. Route the anode lead away from nearby metal surfaces.

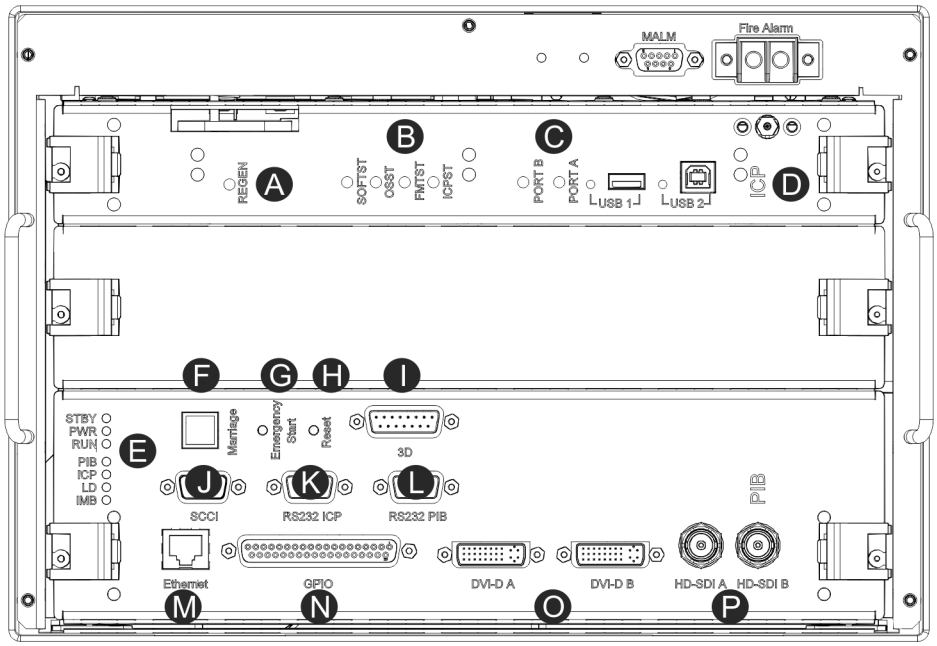
9. Close the lamp access door and tighten the 2 thumbscrews.
10. Close and lock the rear access door.

    Make sure the hex key is placed back into its holder before closing the rear access door.

Connect Devices to the Projector

To display content, you must connect a device that is capable of storing or playing content to the projector.

Projector Connections and Status LEDs



Item	Description
A	Indicates the status of the regulator. A solid blue LED indicates the regulator is enabled. If the LED is not illuminated, the regulator is not enabled.

Item	Description
B	• **SOFTST -** (Software State) Indicates the state of the software application running on the ICP. During normal operation, this LED blinks. During start up, the LED changes from off to blinking. • **OSST -** (Operating System State) Indicates the state of the ICP operating system. During normal operation, the LED is green. During start up, the LED changes from off to green. • **FMTST -** (FMT FPGA State) Indicates the state of the FMT FPGA. During normal operation, the LED is green. When the power is turned on, the LED turns green immediately. • **ICPST -** (ICP FPGA State) Indicates the configured state of the ICP FPGA. During normal operation, the LED is green. When the power is turned on, the LED turns green immediately.
C	• **PORT B -** Indicates the status of the USB port. A green LED indicates the port is active. If the LED is not illuminated, the port is inactive. • **PORT A -** Indicates the status of the USB port. A green LED indicates the port is active. If the LED is not illuminated, the port is inactive.
D	Indicates the status of the Integrated Cinema Processor (ICP). A green LED indicates the ICP is operating correctly. A red LED indicates a communication issue. If the LED is not illuminated, the ICP is inactive.
E	• **STBY** - The LED is green when the standby power supply is active. If the LED is not illuminated, the standby power supply has failed or the projector circuit breaker is off. • **PWR** - The LED is green when the Low Voltage Power Supply (LVPS) is active. If the LED is not illuminated, the LVPS has failed or the projector circuit breaker is off. • **RUN** - The LED flashes green when the projector is operating normally. If the LED is not illuminated or solid green, a communication, software, or hardware error has occurred. If the LED is yellow, the projector cannot communicate with the touch panel controller (TPC). • **PIB** - The LED is green when the Projector Intelligence Board (PIB) is detected and operating correctly. A red LED indicates a communication error. A flashing red LED indicates the PIB is not installed correctly. If the LED is not illuminated, the PIB is inactive. • **ICP** - The LED is green when the ICP is operating correctly. A red LED indicates a communication issue. If the LED is not illuminated, the ICP is inactive. • **LD** - The LED is green when the Link Decrypter (LD) is active. • **IMB** - The LED is green when the Integrated Media Block (IMB) is operating correctly. A red LED indicates a communication issue. If the LED is not illuminated, the IMB is inactive.
F	Indicates marriage status. In full power mode, a green LED indicates that the projector is properly married and encrypted content can be displayed. A red LED indicates marriage is broken and encrypted content cannot be displayed.
G	Turns the projector and the lamp on and opens the douser. Press and hold the button to close the douser, turn the lamp off, and keep the power on. It is recommended that you use this button only when the TPC is unavailable.
H	Resets the projector electronics. After restarting, the projector returns to its previous power mode. You must strike the lamp manually.
I	Connects the projector to 3D devices such as MasterImage or RealD.
J	A Simple Contact Closure Interface (SCCI) port that uses a simple dry contact closure to turn the lamp on or off or open or close the douser.
K	Connects the projector to a computer.
L	Connects the projector to Christie or third-party automation equipment. Utilizes the Christie-proprietary protocol.
M	Connects the projector to a 10Base-T/100Base-TX Ethernet connection.

Item	Description
N	Connects the projector to external input and output devices, such as the Christie ACT.
O	Connects the projector to non-cinema video and graphics sources. These are single-link ports for single-link cables and connectors. The connectors can be used together as a twin-link DVI port.
P	Connects the projector to high-definition cinema sources. The connectors can be used together to deliver Dual Link HD-SDI following the SMPTE 372M standard.

Connect the Projector to a Computer

Connect one end of an Ethernet or a RS232 cable to the Ethernet or the RS232 PIB port on the projector communications panel and the other end to your computer. To communicate with the projector, the projector must be added to the same network as the computer. See *Add the Projector to a Network* on page 16.

Connect Devices to the 3D Terminal

See *View 3D Content* on page 65.

Connect Devices to the GPIO Port

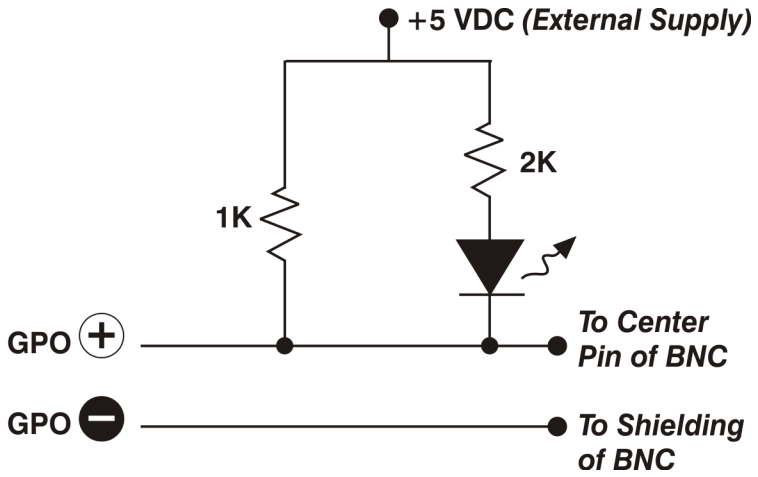
The GPIO port is a 37-pin D-sub connector located on the PIB input panel. The port provides 8 input and 7 output signals for connecting external devices to the projector. To configure the pins on the connector, tap **Menu** > **Administrator Setup** > **GPIO Setup**.

Each available pairing of pins (±) is defined as an input or an output. Four inputs and three outputs are predefined. If you want the projector to respond to an incoming signal, configure a pin as an input. If you want an external device to respond to the projector as an output signal, configure a pin as an output.

PIN	Positive	Negative	Description
GPIN #1	Pin 1	Pin 20	3-D L/R Input Reference
GPIN #2	Pin 2	Pin 21	3-D L/R Display Reference
GPIN #3	Pin 3	Pin 22	Reserved
GPIN #4	Pin 4	Pin 23	Reserved
GPIN #5	Pin 5	Pin 24	Input
GPIN #6	Pin 6	Pin 25	Input
GPIN #7	Pin 7	Pin 26	Input
GPIN #8	Pin 8	Pin 27	Input
GPOUT #1	Pin 9	Pin 28	External 3-D L/R Output Reference
GPOUT #2	Pin 10	Pin 29	Reserved

PIN	Positive	Negative	Description
GPOUT #3	Pin 11	Pin 30	Reserved
GPOUT #4	Pin 12	Pin 31	Output
GPOUT #5	Pin 13	Pin 32	Output
GPOUT #6	Pin 14	Pin 33	Output
GPOUT #7	Pin 15	Pin 34	Output
PROJ_GOOD	Pin 16	Pin 35	Projector Good

This diagram illustrates how to wire a GPIO cable to a server or a 3D device:



The recommended operating point is 5mA, the maximum current is 50 mA, and the forward voltage drop is ~ 1 V (@ 5 mA).

Connect Devices to the SCCI Port

The Simple Contact Closure Port (SCCI) port is a DB-9 (male) connector located on the PIB input panel. The SCCI port controls a limited set of projector functionality through contact closures. This table lists the control functions available through the SCCI port:

PIN	Signal Name	Direction	Description
1	+5V standby	Out	Current limited 5VDC supply.
2	Lamp on	In	Projector power and lamp is on.
3	+5V standby	Out	Current limited 5VDC supply.
4	Lamp off	In	Projector power on and lamp is off.
5	+5V standby	Out	Current limited 5VDC supply.
6	Douser closed	In	Close douser.
7	Douser open	In	Open douser.

PIN	Signal Name	Direction	Description
8	Health output	Out	Playback stops and the open collector registers low when one of these interlocks is activated: • Lamp Door • Lamp Blower • Extractor • Tamper • Marriage • Ballast Communication Playback functions normally when the open collector registers high and all CineLink and Lamp interlocks are not activated.
9	Ground	Out	Ground.

All SCCI inputs require a pulse input of 50ms to several seconds to operate reliably. Inputs are 5V resistor current limited LED's inside of optocouplers.

The open-collector Health Output (PIN 8) circuit only draws power when a failure occurs or an interlock is activated.

Connect Power

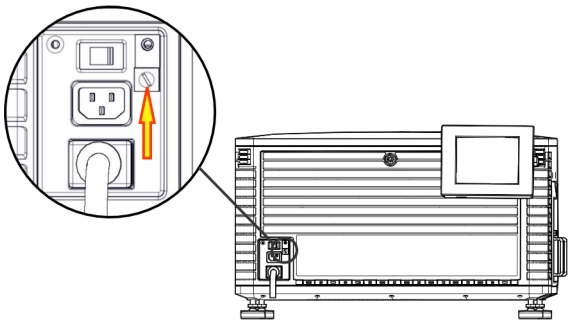
⚠WARNING

The dedicated earth wire can only be installed by a Christie accredited service technician or an electrician. The protected earth wire must be green/yellow 12 AWG minimum. See *Power Requirements* on page 89 for power requirements. Failure to comply could result in death or serious injury.

⚠CAUTION

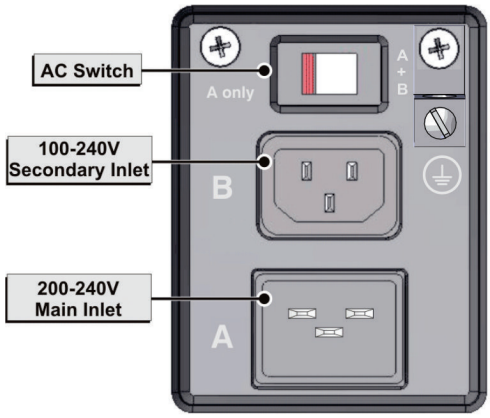
- Do not operate the projector if the AC power supply and cord are not within the specified voltage and power range. Only use the power cord supplied with the projector. Failure to comply could result in minor or moderate injury.
- A dedicated, protected earth wire must be installed on the projector before it can be connected to power. You must use a 20A branch circuit breaker for Input A. Install the projector near an AC receptacle that is easily accessible. Failure to comply could result in minor or moderate injury.

1. If the projector is operating, turn it off and disconnect it from AC power.
2. Loosen the threaded bolt on the ground lug on the AC receptacle on the rear corner of the projector.



3. Remove 15 mm of insulated covering from both ends of the protected earth wire.

4. Insert a bare end of the protected earth wire into the hole on the top of the ground lug so it is beneath the threaded bolt.
5. Tighten the threaded bolt to 50 in-lb.
6. Connect the other bare end of the protected earth wire to the building ground.
7. Connect one end of the projector power cord to the AC receptacle on the lower-left rear corner of the projector and then connect the other end of the power cord to an AC receptacle.
8. If you are using an Uninterrupted Power Supply (UPS) to power the main electronics, move the AC switch to A + B and connect the power cord provided with the UPS to the B outlet.



Turn the Projector On

⚠WARNING DO NOT attempt to turn the projector on if the AC supply is not within the specified voltage range. See Power Requirements on page A-3 for power requirements. Failure to comply could result in death or serious injury.

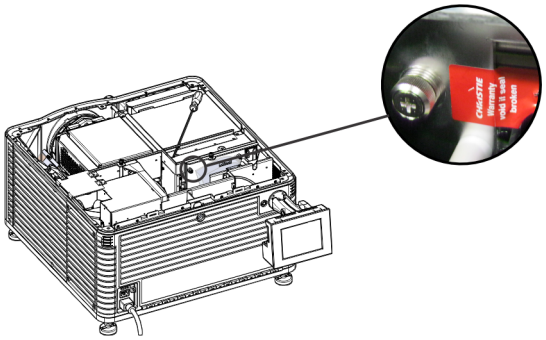
1. Make sure the circuit breaker for the projector is ON.
2. On the touch panel controller (TPC), tap and hold the green power icon.

Log On to the Projector

1. On the touch panel controller (TPC), tap **Menu** > **Login**.
2. Select a user name in the **Username** list. To view the permissions associated with each account see *User Access Permissions* on page 57.
3. Enter your password.
4. Tap **Login**.

Activate Marriage

You must complete marriage to display encrypted content and to comply with the Digital Cinema Initiatives (DCI) specification. You cannot complete marriage remotely. In addition, an authorized employee must be physically present to verify that the anti-tamper seal on the firewall is unbroken, the projector is unaltered, and to press the marriage button on the card cage faceplate.



1. Log on to the projector with marriage permissions. See *Log On to the Projector* on page 15.
2. Tap **Menu** > **Service Setup** > **LD Marriage**.
3. Complete the **Marriage** wizard.
4. Click **Finish**.

Add the Projector to a Network

1. On the touch panel controller (TPC), tap **Menu** > **Login**.
2. Select an administrator account in the **Username** list.
3. Enter a password in the **Password** field and then tap **Login**.
4. Tap **Menu** > **Administrator Setup** > **Communications Configuration**.
5. Complete these fields:

Field	Description
Device Name	The name of the projector.
IP Address	The IP address of the projector.
Subnet Mask	The subnet mask to which the IP address belongs.
Gateway	The IP address for the network gateway.
Apply	Applies Ethernet settings.
Serial Speed (Baud)	The baud rate of the serial port. The default is 115200.
Enable SNMP	Enables SNMP.
SNMP V2 / SNMP V3	The SNMP protocol type. Contact Christie technical support for the SNMP V3 user ID and password.

Field	Description
Management IP	The IP address where SNMP information and notifications are sent.
Download MIB to USB	Sends the SNMP Management Information Base (MIB) file to a USB flash drive.
Apply	Applies SNMP settings.
Serial Access	Grants access to serial connections.
Ethernet Access	Grants access to Ethernet connections.

Add the Lamp Information to the Lamp History

1. If the lamp is on, tap the lamp off ( ) icon to turn it off.
2. Tap **Menu** > **Advanced Setup** > **Lamp Change Wizard**.
3. Tap **Next**.
4. Complete these fields:

Field	Description
Type	The lamp type.
Serial Number	The lamp serial number.
Reason for Change	The reason the lamp was changed.
Lamp Expiry (Hours)	The number of hours the lamp can operate before replacement. This field is auto-populated.
Hours Used	The number of hours the lamp has operated before installation.

5. Tap **Save**.
6. Tap **Next**.

Turn the Lamp On

On the projector touch panel controller (TPC) main screen, tap the lamp on ( ) icon.

Align the Lamp with LampLOC

To ensure optimal lamp performance and peak brightness at the screen for the life of the lamp, use LampLOC to adjust the lamp position when you install a new lamp in the projector. After making the adjustment, the lamp is well-centered and at the correct distance from the illumination system.

1. Turn the lamp on and open the douser.

2. Tap **Menu** > **Advanced Setup** > **LampLOC Setup**.
3. Tap **Display Full Screen White Test Pattern**.
4. Tap **Do Auto**.

Adjust the Image to Fit Your Screen

This procedure must be completed before you complete a boresight adjustment.

1. Verify the projector is properly positioned relative to the screen.

   See *Position the Projector* on page 4.

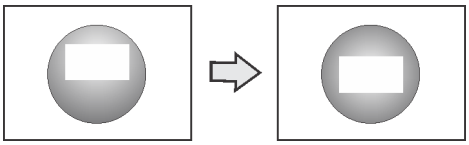
2. Display a RGB-12bit-Full Screen White test pattern and center the image:

   a. Tap the **Test Pattern** icon ( ) in the task bar.

   b. Tap **All Test Patterns**.

   c. Tap **RGB-12bit-Full Screen White**.

   d. On the projector touch panel controller (TPC), tap the **Lens Adjust** ( ) icon on the main screen and then tap the left ( ), right ( ), up ( ), or down ( ) arrow icons in the **Offset** area until the light created by the projector is centered on the screen.



3. Display the DC2K Framing2 test pattern:

   a. On the projector TPC, tap the **Test Pattern** ( ) icon in the task bar.

   b. Tap **All Test Patterns**.

   c. Tap **DC2K Framing2**.

4. On the projector TPC, tap the **Lens Adjust** ( ) icon on the main screen, and tap the left ( ), right ( ), up ( ), or down ( ) arrow icons in the **Offset** area to refine the position of the test pattern on the screen.
5. In the **Zoom** area, tap the positive ( ) and minus ( ) icons until the image fits your screen.
6. In the **Focus** area, tap the left ( ) and right ( ) focus icons until the test pattern details are in focus.

   When your adjustment is complete, the words and lines in the test pattern should be distinguishable uniformly across the screen and there should not be any sections that are out of focus.

7. With the framing test pattern displayed, re-check projector leveling so the top edge of the image is parallel to the top edge of the screen.

8. Display a full white test pattern:

   a. On the TPC, tap the **Test Pattern** icon ( ) in the task bar.

   b. Tap **All Test Patterns**.

   c. Tap **RGB-12bit-Full Screen White**.

9. If the test pattern is focused and centered on the screen you do not need to complete further image adjustment.

   If the image is not focused and centered on the screen, complete one of these procedures:

   a. If the image appears distorted and resembles a trapezoid, see *Correct Keystone Effect* on page 21.

   b. If the image is brighter at the center than it is at the side, see *Correct Vignetting* on page 21 or *Align the Lamp with LampLOC* on page 17.

   c. If a corner or edge of an image is missing, see *Align the Fold Mirror* on page 25.

   d. If the image cannot be focused uniformly on the screen with a focus adjustment, see *Adjust Vertical Boresight Angle* on page 22.

   e. If a large horizontal angular offset to the screen is required, see *Adjust Horizontal Boresight* on page 23.

Play Content

You can play encrypted and unencrypted content on the Christie CP2215 projector.

Unencrypted Content

To play unencrypted content, connect the projector to a device such as a computer, a Blu-ray player, or a game console with an HDMI to DVI connection. For audio, connect the audio output cables to an audio processor. See the documentation included with the device for detailed set up instructions.

Encrypted Content

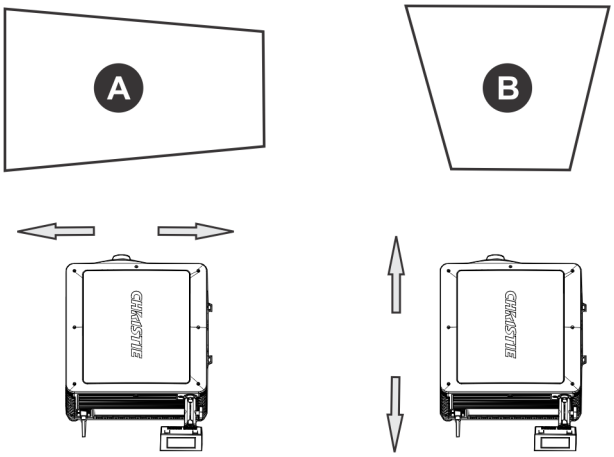
To play encrypted cinema content, an Integrated Media Block (IMB) is required. Contact your Christie sales representative for more information. If you install the optional IMB, you can connect the projector to a network-attached storage (NAS) or direct attached storage (DAS) device.

Adjust the Image

This section provides information and procedures for adjusting the projector image.

Correct Keystone Effect

Keystone effect occurs when you project an image onto the screen at an angle and the projector is not centered on the screen. The image will appear distorted and resemble a trapezoid. This image identifies horizontal (**A**) and vertical (**B**) keystone effect.



Horizontal keystone effect occurs when the projector is titled horizontally (left or right) to the screen. Vertical keystone effect occurs when the projector is tilted vertically (forward or backward) to the screen.

If the image suffers from slight keystone effect, you can correct it with electronic cropping.

If the keystone effect is severe, you can unevenly adjust the feet to compensate for projector tilt. It is recommended that you use lens offset to align the center of the image to the center of the screen before you correct the keystone effect.

If one side of the image is longer than another, see *Adjust Tilt and Level the Projector* on page 5.

Correct Vignetting

The term vignetting applies to an image that is brighter at the center than it is at the sides. If your image suffers from vignetting, the lens has reached the end of its offset travel range. If your installation does not allow the image to be centered with the center of the screen, move the entire projector in the direction of lens travel.

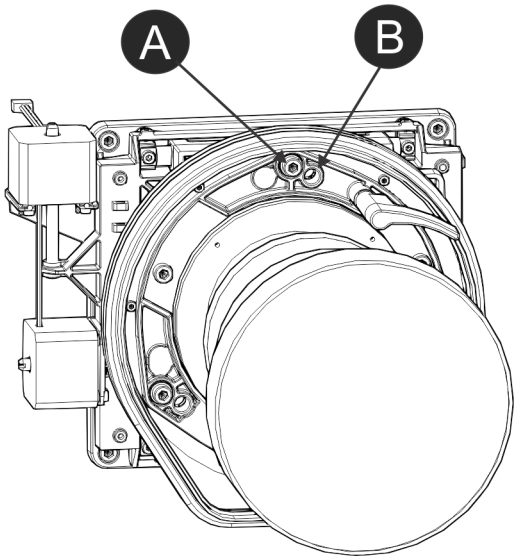
Adjust Vertical Boresight Angle

⚠WARNING A boresight adjustment should only be made when the image cannot be focused uniformly on the screen by aligning the projector to the screen and focusing the lens. When adjusting boresight, you must maintain the boresight distance from the lens to the prism plane set by Christie. For example, when you move the top screw outward, turn the bottom two boresight screws to maintain the overall distance. Failure to comply could result in death or serious injury.

⚠CAUTION Only adjust vertical boresight 1/8 of a turn or less at one time to maintain optimal lens performance (factory setup of absolute lens distance to the prism). It is critical that each turn of the cap screws is counted to make sure the adjustments are accurate. Failure to comply could result in minor or moderate injury.

It is recommended that you complete a top and bottom boresight adjustment before adjusting the horizontal boresight.

1. Display the DC2K Framing2 test pattern:
   a. On the Touch Panel Controller, tap the **Test Pattern** icon in the task bar.
   b. Tap **DC2K Framing 2**.
2. Loosen the set screw (B).



A	Cap Screw - Adjusts top and bottom boresight
B	Set Screw - Locks or unlocks the cap screw

3. Turn the vertical cap screw (A) 1/8 of a turn counter-clockwise.
4. Adjust both left and right horizontal adjusters by half the number of turns, in the opposite direction of the vertical adjust. For example, if the vertical adjust cap screw was turned 1/8 of a

turn, the left and right horizontal cap screws should be turned 1/16 of a turn in the opposite direction.

5. Check the screen each time an adjustment is made. If the quality of the projected image has degraded, turn the vertical adjust cap screw 1/8 of turn clockwise. Make sure the left and right horizontal adjusters are adjusted equally in the opposite direction to correct axial focus.

   The 1/8 of a turn is a suggestion only and can be less if needed; however, it should never be exceeded. Always compensate both left and right horizontal adjustments according to the vertical adjustment.

6. Check the image after each adjustment. Continue to make adjustments until both top and bottom are equally sharp. To make sure the lens is in the same relative position, adjust the left and right horizontal adjusters in the opposite direction at the same time.
7. When the top and bottom of the image are equally in focus lock the set screw to hold it in position. Recheck the image.
8. If additional adjustment is required, see *Adjust Horizontal Boresight* on page 23.

Adjust Horizontal Boresight

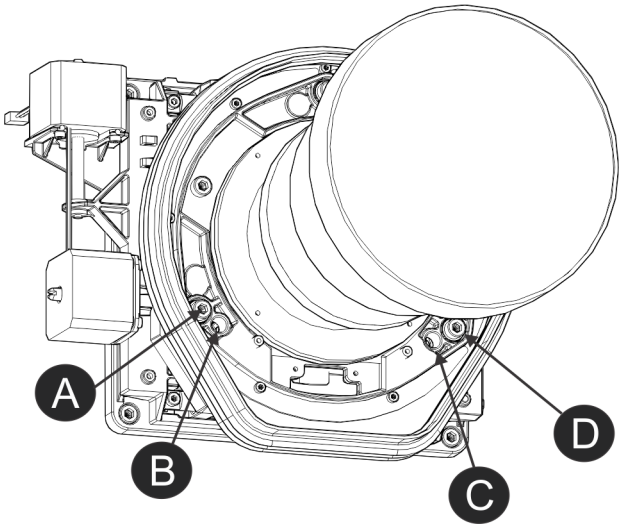
⚠WARNING A boresight adjustment should only be made when the image cannot be focused uniformly on the screen by aligning the projector to the screen and focusing the lens. When adjusting boresight, you must maintain the boresight distance from the lens to the prism plane set by Christie. For example, when you move the top screw outward, turn the bottom two boresight screws to maintain the overall distance. Failure to comply could result in death or serious injury.

⚠CAUTION Only adjust horizontal boresight 1/8 of a turn or less at one time to maintain optimal lens performance (factory setup of absolute lens distance to the prism). It is critical that you count each turn of the cap screws to make sure the adjustment is accurate. Failure to comply could result in minor or moderate injury.

Typically, horizontal boresight does not require adjustment. It should only be adjusted if a large horizontal angular offset to the screen is required.

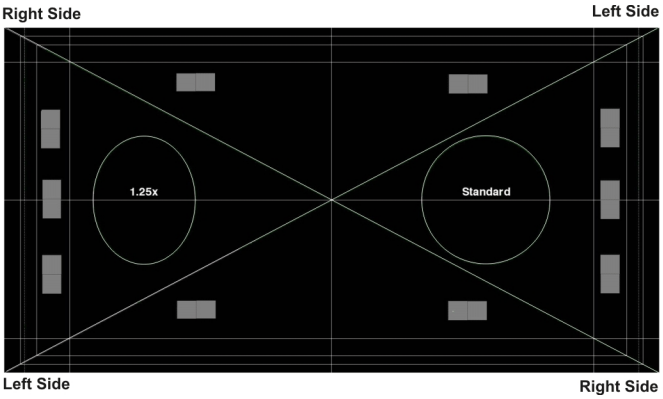
1. Tap the **Test Patterns** button on the Main Panel.
2. Tap **All Test Patterns**.
3. Tap **DC2K Framing**.

4. Loosen the right boresight set screw (B).



A	Right Boresight Cap Screw
B	Right Boresight Set Screw
C	Left Boresight Cap Screw
D	Left Boresight Set Screw

5. Turn the right boresight cap screw (A) 1/16 of a turn clockwise.
6. Adjust the left boresight cap screw (C) equally in the opposite direction.
7. If the quality of the projected image has not improved, turn the right boresight cap screw 1/16 of turn counter-clockwise. Make sure the left adjuster is adjusted equally in the opposite direction.
8. Check the screen each time an adjustment is made. The right-side adjustments affect the top right and bottom left points on the screen. Once both cross hairs are in focus lock the set screw for right boresight.



9. Repeat Steps 5 to 7 for the left side.

10. Each corner of the screen should be equally in focus when horizontal boresight is completed correctly. If necessary, repeat vertical boresight. Only adjust vertical boresight 1/8 of a turn or less at one time to maintain optimal lens performance (factory setup of absolute lens distance to the prism). It is critical that each turn of the cap screws is counted to make sure the adjustments are accurate.

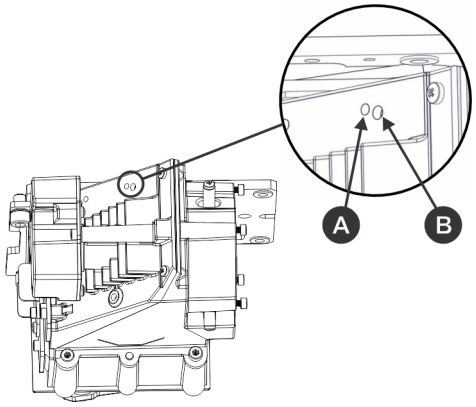
Adjust DMD Convergence

A convergence problem occurs when one or more projected colors (red, green, blue) appears misaligned when examined with a convergence test pattern. Normally, the three colors should overlap precisely to form pure white lines throughout the image and one or more poorly converged individual colors may appear adjacent to some or all of the lines. Contact your Christie accredited service technician to correct DMD convergence issues.

Align the Fold Mirror

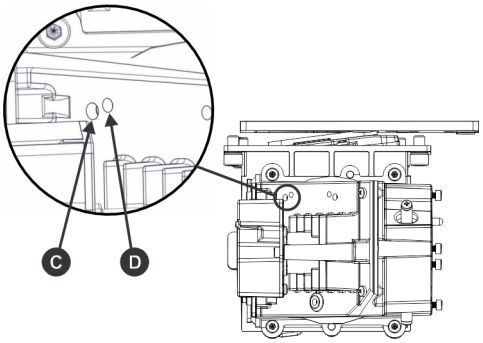
If a corner or edge of an image is missing, the fold mirror might be misaligned with the optical system. To correct this issue:

1. Remove the top lid and set it aside.
2. Display a full white test pattern:
    a. On the TPC, tap the **Test Pattern** icon ( ) in the task bar.
    b. Tap **All Test Patterns**.
    c. Tap **RGB-12bit-Full Screen White**.
3. Insert a hex driver in the first set screw (A) and a hex driver in the first cap screw (B).



A	Set Screw (x2)
B	Cap Screw (x2)

4. Equally turn the set screw (A) and cap screw (B) in opposite directions until the black corner is removed.
5. If the black corner remains, insert a hex driver in the second set screw (D) and a hex driver in the second cap screw (C).



C	Cap Screw (x2)
D	Set Screw (x2)

6. Equally turn the set screw (A) and cap screw (B) in opposite directions until the black corner is removed.
7. Replace the top lid.

Color Calibration

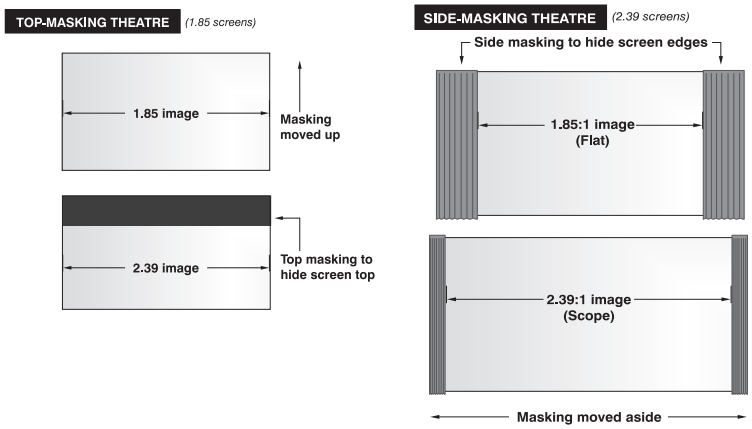
Create Measured Color Gamut Data (MCGD) files to correct on-screen colors. A colorimeter is required to complete this procedure. Measure the colors displayed on the screen from the center of the audience viewing location. See *Create a MCGD File* on page 46.

Screen Masking

You use masking to conceal the unused edges of a screen. These are the two most common types of screen masking:

- Top Masking – Movable flat black panels or curtains are installed along the top edge of the screen. You raise the curtain for flat images, and you lower the curtain for scope images.
- Side Masking – Movable flat black panels or curtains are installed on each side of the screen. You close the curtain for flat images, and open the curtain and zoom for scope images.

Typically, you install top and side masking to allow a greater range of adjustment.



Calibrate Screen Brightness (fL)

1. Turn the lamp on and allow it to operate for 20 minutes.
2. On the touch pad controller, tap **Menu** > **Administrator Setup** > **Foot Lamberts Calibration**.
3. Complete the **Foot Lamberts Calibration** wizard.

Access the Projector and Run Diagnostics

This section describes how to access the projector and run projector diagnostic utilities.

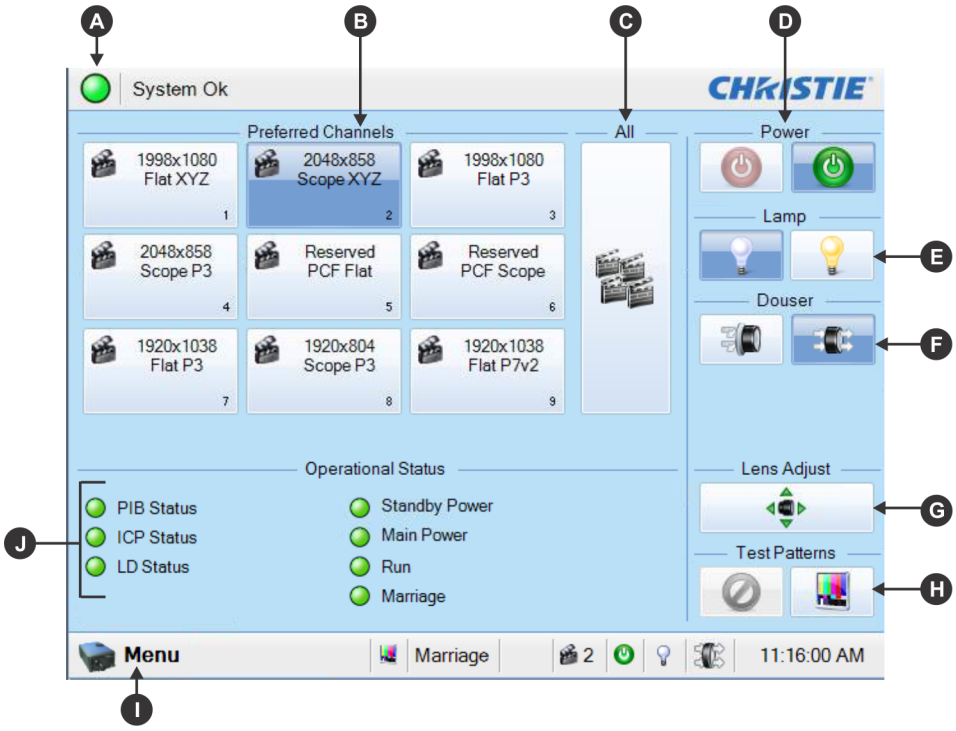
The Touch Panel Controller

The TPC is a touch-sensitive screen that you use to control the projector. You can use the TPC to turn the projector and lamp on or off, select channels, and view status information. The TPC is mounted on the rear of the projector. You can tilt and turn the TPC to improve the viewing angle. Use the USB port on the side of the TPC to download log files and install software upgrades. You can disconnect the TPC from the projector and an optional cable allows you to control the projector from a maximum distance of 100 feet.

If the TPC fails or is disconnected, press the emergency start button on the communications panel. This starts the projector, turns the lamp on, and opens the douser. When using the emergency start button, you cannot change channels.

The Main Screen

Use the Main screen of the Touch Panel Controller (TPC) to access power, lamp, douser, channel, and test pattern settings.



A	A green LED indicates that the projector is operating properly. If a monitored system falls below a normal reading, the LED is yellow or red. A yellow LED indicates a warning, and a red LED indicates a critical error that you must correct. Click the status LED to open the Status window and resolve issues.
B	Displays custom projector settings.
C	Displays 64 saved channels.
D	Turns the projector on or off. Tap off to place the projector in stand-by mode. To prevent accidental activation, you must tap and hold the on or off buttons. A message displays in the title bar when the projector turns on or off.
E	Turns the lamp on or off. To prevent accidental activation, you must tap and hold the on or off buttons. A boot delay occurs if you select lamp on before pressing power on.
F	Opens or closes the douser.
G	Controls the Intelligent Lens System (ILS) lens motors. Tap to open the ILS File Setup window.
H	Selects or disables test patterns. Tap the test pattern icon to open the Preferred Test Patterns window.
I	Tap the **Menu** button to access projector menus.
J	Displays the status of projector functions including the Projector Intelligence Board (PIB), the Integrated Cinema Processor Board (ICP), Standby Power, Main Power, Run, and Marriage. A green LED indicates the system is functioning correctly. A red LED indicates a critical error that you must correct. Click the status LED to open the Status window and resolve issues.

Log On to the Projector

1. Tap **Menu** > **Login**.
2. Select a user name in the **Username** list.
3. Enter the password in the **Password** field and then tap **Login**.

LED Status Indicators

Red, yellow, and green LEDs on the rear corners of the projector indicate the operational status of the projector. The LEDs can be solidly lit, or they can flash frequently or intermittently. This table lists the LED state its associated meaning.

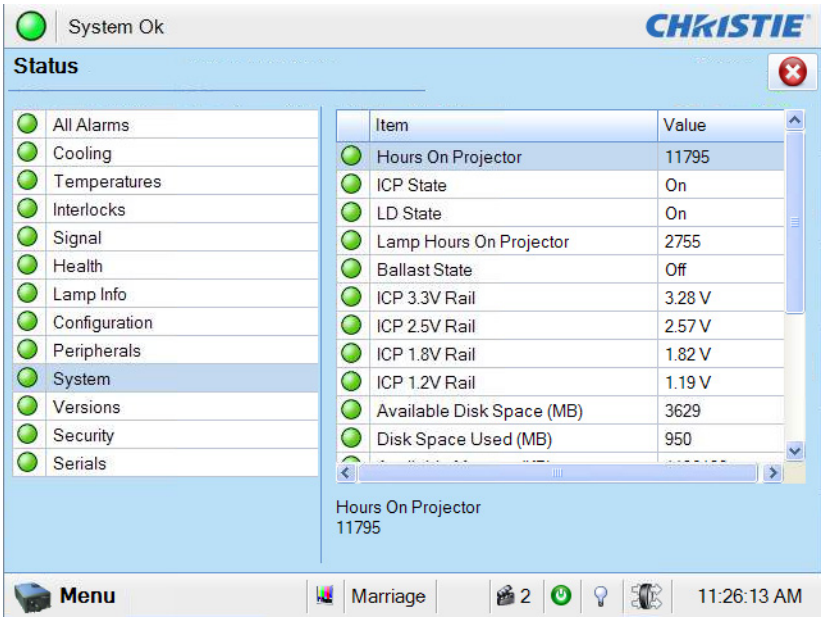
LED	State	Description
Solid green	Lamp on	Power and lamp are on.
Flashing green	Power on	Power is on and the lamp is off. The lamp can be struck.
Solid yellow	Standby mode	Power and lamp are off. Power saving mode.
Flashing yellow or green	Cool down mode	Moving to standby mode. Power is on and the lamp is off. The lamp can be struck.

LED	State	Description
Flashing red	New critical alarm or warning	Unacknowledged critical alarm or warning. See *Turn the Projector Off* on page 34.
Solid red	Existing critical alarm or warning	Acknowledged critical alarm or warning.

View the Status of Projector Components

Tap **Menu** > **Status**.

The Status window displays information about the status of projector components. The right pane lists projector components and their status. The left pane displays detailed information about individual projector items.

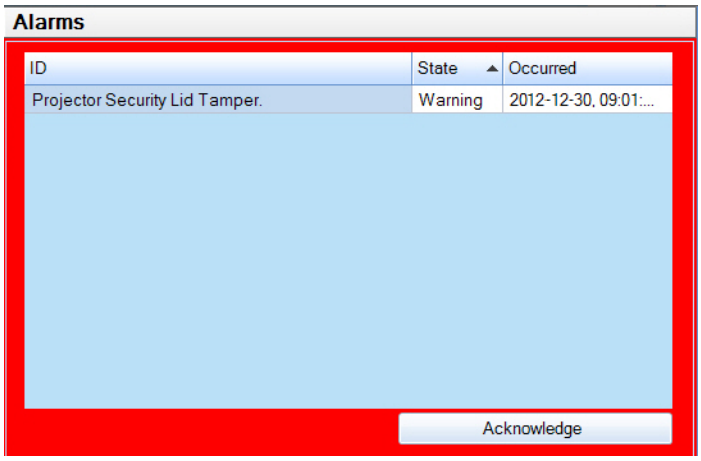


A green LED indicates the item is functioning correctly. A yellow LED indicates an item requires attention. A red LED indicates an item requires immediate attention.

If the **Item** or **Value** descriptions are too long for the cell, click the description to display the full description at the bottom of the window. To adjust the width of a column in the left pane, tap and drag the column border. When you close the Status window, the column widths return to their default size.

Respond to Alarms

When an alarm occurs, an Alarms window with a red border appears with a description of the alarm condition, state, and time and date of the alarm. The window only displays alarms you have not previously acknowledged. To acknowledge an alarm and remove it from the Alarms window, click **Acknowledge**. To view all alarms, tap **Menu** > **Status** > **All Alarms** in the left pane.



Run the Projector Interrogator

The interrogator captures diagnostic information that you can use to assist Christie service personnel diagnose and correct projector issues. To access the Interrogator menu, you need Operator, Administrator, or Service permissions. When you run the interrogator, you cannot modify projector settings.

Image disruption can occur if you run the interrogator when content is playing.

Log files are compressed into a 7z or 7-zip file format. A tool for opening these archives can be downloaded from http://www.7-zip.org.

1. Tap **Menu** > **Diagnostics** > **Interrogator**.
2. Tap **Basic Mode**. A basic projector interrogation returns only projector log files.

   - or -

   Tap **Enhanced Mode**. An enhanced interrogation returns projector log files and registered batch files.
3. Tap **Yes**.
4. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).
5. Tap **Download to USB**.

View SMPTE Errors

The SMPTE Errors window displays a numerical representation of the signal integrity of the HD-SDI signals sent to the projector on the Bayonet Niell-Concelman (BNC) signal cables.

Tap **Menu** > **Diagnostics** > **SMPTE Errors**.

Clear SMPTE Errors

1. Tap **Menu** > **Diagnostics** > **SMPTE Errors**.
2. Tap **Clear Errors**.

Retrieve System Logs

System logs can help you identify and correct projector issues. To retrieve system logs you need Operator, Administrator, or Service permissions.

1. Tap **Menu** > **Diagnostics** > **System Logs**.
2. Select a start date for the logs in the **From** list.
3. Select an end date for the logs in the **To** list.
4. Select a log type in the **Type** list.
5. Select the severity type in the **Severity** list.
6. Tap **Retrieve Logs**.
7. To download the log files to a USB:
    a. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC).
    b. Tap **Download to USB**.

Run a Server Test

You can run a server test to search the subtitle and metadata .xml files for errors in content or in transmission from the server. You cannot use a server test to turn metadata or subtitling off or on.

1. Tap **Menu** > **Diagnostics** > **Server Test**.
2. Enter the location of the metafile in the **Meta File URI** field.

    - or -

    Enter the location of the subtitle file in the **Subtitling URI** field.

Turn the Projector Off

1. On the Touch Panel Controller (TPC), tap and hold the light bulb icon to turn the lamp off.
2. On the TPC, tap and hold the red power icon.

   The projector enters a cool down mode and the fans and electronics stay on for 10 minutes. After this cool down period, the projector enters standby mode.

   If you are servicing the projector, or removing the outer skins, disconnect the projector from AC power and turn the breaker off.

Manage the DLP

This section provides procedures for managing the Integrated Cinema Processor (ICP) electronics. To access the DLP menus, you need Administrator or Service permissions.

Reset the DLP

To remove image artifacts from the screen, try resetting the DLP before restarting the projector. Do not reset the DLP if content is playing.

1. Tap **Menu** > **Diagnostics** > **DLP Management**.
2. Tap **Reset DLP**.
3. Tap **Yes**.
4. Tap **Acknowledge** if an alarm appears.

Run a DLP Self Test

Run a DLP self test to test the functionality of the Integrated Cinema Processor (ICP) and DLP.

1. Tap **Menu** > **Diagnostics** > **DLP Management**.
2. Tap **DLP Self Test**.
3. Tap **Yes**.
4. Tap **Clear Results** to close the **Results** pane.

Download an ICP Certificate

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC). If you do not insert a USB flash drive, the ICP certificate is saved to the FTP root directory.
2. Tap **Menu** > **Diagnostics** > **DLP Management**.
3. Tap **Download ICP Certificate**.
4. Tap **Close**.

Download an LD Certificate

1. Insert a USB flash drive in the USB port on the side of the touch panel controller (TPC). If you do not insert a USB flash drive, the ICP certificate is saved to the FTP root directory.
2. Tap **Menu** > **Diagnostics** > **DLP Management**.

3. Tap **Download LD Certificate**.
4. Tap **Close**.

Disable the ICP Signature Test

Error messages that appear when the ICP is turned on and the ICP signature test is run can disrupt projector network monitoring. Use this procedure to disable the Signature Test.

1. Tap **Menu** > **Diagnostics** > **DLP Management**.
2. Tap **Bypass Signature Test**.
3. Tap **Yes**.

   To re-enable the ICP signature test, clear the **Bypass Signature Test** check box.

Indicate an LD is Installed

1. Tap **Menu** > **Administrator Setup** > **Content Devices Configuration**.
2. Tap **LD Installed**.

Work with Channels

Create channels to store customized projector settings for different inputs. You can create a maximum of 64 channels.

Create a New Channel

You need Advanced, Administrator, or Service permissions to create or modify channel settings. You can create a maximum of 64 channels.

1. Tap **Menu** > **Channel Setup**.
2. Tap the **Launch Dialog** icon.
3. Enter a name for the channel and tap **Enter**.
4. Complete these fields on the Config 1 screen:

Field	Description
Icon	The icon associated with the channel.
Input	The device associated with the channel.
Data Format	The source color depth (8-10-12 bit) for the channel.
Source File	The resolution and aspect ratio for the channel.
Screen File	The screen type, masking, cropping, and lens settings for the channel.
Use PCF	Associates the channel with a Projector Configuration File (PCF) and prevents Channel adjustments.
PCF	The PCF file associated with the channel.
Lamp File	The lamp file associated with the channel. Tap the **Launch Dialog** icon to edit the lamp file settings. Any changes made to the Lamp File settings are applied to all channels that use this lamp file.
Use ILS	Associates the channel with a Intelligent Lens System (ILS) file.
ILS File	The ILS file associated with the channel. The ILS file automatically adjusts the lens position so the content displays correctly. Tap the **Launch Dialog** icon to edit the ILS file settings. Any changes made to the ILS File settings are applied to all channels that use this ILS file.

5. Tap **Config 2** in the left pane and then complete these fields:

Field	Description
Measured Color	The Measured Color Gamut Data (MCGD) file used to calculate target color processing.
Target Color	The Target Color Gamut Data (TCGD) value. This option is not available when **Use PCF** is selected in the Config 1 screen.

Field	Description
Color Space	The method of color decoding for the current source. The default is YCbCr for all DVI sources. The default for all cinema sources is Unity RGB. This option is not available when **Use PCF** is selected.
Gamma	The gamma correction required for the proper tonal range of the source material. This option is not available when **Use PCF** is selected.
LUT_CLUT	Applies a 3D color cube for increased color accuracy. This option is not available when **Use PCF** is selected.
Scan Type	The video scan type. The default is **Progressive**.
Automatic Scan Type Detection	Automatically performs scan type detection. This feature is supported for PIB inputs only.
Use PCT	Applies Christie Pureformity Color Technology (PCT) to the channel.
PCT File	Identifies the Christie Pureformity Color Technology (PCT) file associated with the channel.
HDMI EDID Type	Identifies the extended display identification data (EDID) type used by the channel when playing content from a device connected to the HDMI A/LEFT or HDMI B/RIGHT ports.
Enable 3D Dual Measured Color	Enables 3D Dual Measured Color on the channel. Select the color files for the left and right eyes.

6. Tap **3D Control** in the left pane if the channel will be used to display 3D content. Complete these fields:

Field	Description
Enable 3D	Enables 3D.
3D Test Patterns	Displays 3D test patterns.
3D Sync Input Mode	Specifies whether a specific frame of input data has left eye or right eye data. Select **Use White Line Code (true and inverted)** if you are using a single 3D input signal in which an embedded white line at the bottom of each frame identifies left and right, and an additional separate 3D stereo sync input at the GPIO port is not present. The bottom row of the left-eye sub-field should be pure white for the left-most 25% of the pixel row and pure black for the remainder of the row. The bottom row of the right-eye sub-field should be pure white for the left-most 75% of the pixel row and pure black for the remainder of the row. Select **Use Line Interleave for 3D** source data only. When specified, the ICP will de-interleave each line into the left image or right image in memory as specified. Line interleave can be used with PsF 3D data (left and right data for one field, then left and right data for second field).
L/R Display Reference	Specifies which frame of eye data to display during a specific display frame. This signal is referenced to the display frame rate which is specified by the Frame Rate N:M.
Frame Rate N:M	Sets how many frames to display per number of frames that form one complete image. Increase the display frame rate to reduce flicker from your source(s).

Field	Description
L/R Display Sequence	Defines the frame order (L-R or R-L) required for 3D perspective. This option only has meaning when the Frame Rate factor M is equal to 2. For this case, 2 input frames of data are required to constitute a complete frame of image data. This parameter tells the system which frames go together to make a complete image. **NOTE**: *When using **Line Interleave** as the **3D Sync Input Mode**, ensure that **Left (L1R1 L2R2)** is selected.*
3D Sync Polarity	Keeps 3D stereo sync output the same as input (true) or reversed (inverted). **True**: 3D L/R sync output from GPO will match L/R sync input. **Inverted**: 3D L/R sync output from GPO will be the opposite of sync input (left = right, right = left).
Dark Time	Creates a blank time interval between left and right frames to allow for LCD shutter glasses, Z screen, or rotating 3D wheel to synchronize the output. See Dark Time and Output Delay Notes below. Values between 0 and 65535 are accepted. Tap the **Launch Dialog** button to enter the dark time value.
Output Delay	The non-image time in Microseconds (µ). Offset 3D stereo sync output in relation to dark time interval. Acceptable values are between -32768 and 32767. A positive offset adds a delay and a negative offset starts playback early. Tap **Launch Dialog** to enter the output delay value.
Phase Delay	The degree of reference between the left and right sync output. Values between -180 and 180 are accepted. Tap **Launch Dialog** to enter the phase delay value.

7. Tap **Activate** to activate the channel.

Activate a Channel

1. Tap **Menu** > **Channel Setup**.
2. Select a channel in the **Channel Name** list.
3. Tap **Activate**.

Restore Default Channel Settings

1. Tap **Menu** > **Channel Setup**.
2. Select a channel in the **Channel Name** list.
3. Tap **Defaults**.
4. Tap **Default Current Channel** to restore the default settings to the selected channel.

   - or -

   Tap **Default All Channels** to restore the default settings to all channels.
5. Tap **OK**.

Change the Channel Icon

1. Tap **Menu** > **Channel Setup**.
2. Select a channel in the **Channel Name** list.
3. Tap **Icon**.
4. Tap an **Icon**.
5. Tap **OK**.

Add or Remove Preferred Channels from the Preferred Channels Pane

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** >**Administrator Setup** > **Preferred Channel Setup**.
2. To add a channel to the Preferred Channels pane, tap and drag a channel from the **All Channels** list to the **Selected Channel Buttons (Drag and Drop)** pane.
3. To remove a channel from the Preferred Channels pane, tap and drag a channel from the **Selected Channel Buttons (Drag and Drop)** pane to the recycle bin in the bottom right corner.

Manage Lamp Information

This section provides information and procedures for optimizing lamp performance. Optimizing lamp performance is recommended to make sure you receive the brightest, most uniform image possible for the life of the lamp.

Create a New Lamp File

1. Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.
2. Complete these fields:

Field	Description
Power%	The percentage of power to supply to the lamp.
Enable LiteLOC™	Enables or disables LiteLOC™. LiteLOC™ is a power control algorithm that increases the power level to maintain lamp brightness as the lamp ages.
Light Meter - Set Target	Enables LiteLOC™ and maintains the current brightness level for as long as possible. The Light Meter value is an arbitrary unit of measure, not lumens or fL.
Amps	Lamp current in amperes.
Volts	Lamp voltage in volts.
Watts	Lamp power in watts.
~fL or ~cd/m^2	Approximate Foot Lamberts reading on the light sensor. This assumes a calibration was performed.
Hours	Number of hours the current lamp has operated.
Intensity	The current light sensor reading in arbitrary units-of -measure and does not represent actual lumens or fL.

3. Tap **Save As**.
4. Enter a name for the lamp file in the **Filename** field.
5. Tap **OK**.

Modify an Existing Lamp File

1. Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.
2. Select a lamp file in the **Current Lamp File** list.
3. Modify the lamp file settings.
4. Tap **Save**.

   To revert your changes, tap **Revert** before you tap **Save**.

Enable or Disable LiteLOC on a Lamp File

LiteLOC™ is a power control algorithm that increases the power level to maintain lamp brightness as the lamp ages.

1. Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.
2. Select a lamp file in the **Current Lamp File** list.
3. Tap **Enable LiteLOC** to enable LiteLOC.

   - or -

   Clear the **Enable LiteLOC** check box to disable LiteLOC.
4. Tap **Save**.

Adjust Lamp Power

1. Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.
2. Increase or decrease the **Power %** value.
3. Tap **Set Target**.
4. Select **Enable LiteLOC™.**

Change the Lamp Power Percentage

Entering a new Lamp Power percentage temporarily disables LiteLOC settings.

1. Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.
2. Increase or decrease the **Power %** value.

View Lamp Information

To view information about the lamps previously installed in the projector:

Tap **Menu** > **Advanced Setup** > **Lamp History**.

Receive an Alarm when a Lamp Reaches Its Expiry Date

To receive an alarm when the lamp reaches its operational limit:

1. Tap **Menu** > **Administrator Setup** > **Preferences**.
2. Tap **Lamp Expiry** in the **Alarm Triggers** area.

Add a Lamp to the Lamp History

You cannot remove or modify a lamp after you add it.

1. Tap **Menu** > **Advanced Setup** > **Lamp History**.
2. Tap **Add Lamp**.
3. Complete these fields:

Field	Description
Type	The lamp type.
Serial Number	The lamp serial number.
Reason for Change	The reason the lamp was changed.
Lamp Expiry (Hours)	The number of hours the lamp can operate before replacement.
Hours Used	The number of hours the lamp has operated before installation.

4. Tap **Save**.

Verify Current Lamp Intensity

Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**.

The current light intensity value appears in the **Intensity** field.

Manage Projector Setting Files

Advanced, administrator, service, or marriage permissions are required to complete the procedures in this section.

Create a Source File

Create source files to store resolution, offset, and aspect ratio settings for input devices.

1. Tap **Menu** > **Advanced Setup** > **Source File Setup**.
2. Tap **Save As**.
3. Enter a name for the source file in the **Filename** field.
4. Tap **OK**.
5. Enter values in these areas:

Area	Description
Resolution	The X and Y resolution of the incoming signal. For example, 2048 (X) and 858 (Y) or 1920 (X) and 1080 (Y). The resolution must match the incoming signal format.
Offset	The amount of incoming data to discard. Set the values to zero to process all incoming data. The allowable X range is -4096 to 4096 pixels and Y range of -2160 to 2160 pixels.
Aspect Ratio	The aspect ratio for the incoming signal. The allowable range is 0 to 7.99.

6. Tap **Save**.

Modify a Source File

1. Tap **Menu** > **Advanced Setup** > **Source File Setup**.
2. Select a source file in the **Current Source File** list.
3. Modify the **Resolution**, **Offset**, or **Aspect Ratio** values.
4. Tap **Save**.

Create a Screen File

Use screen files to define the size of the display panel and image cropping. You can assign the same screen file to multiple input devices.

1. Tap **Menu** > **Advanced Setup** > **Screen File Setup**.

2. Tap **Save As**.
3. Enter a name for the source file in the **Filename** field.
4. Tap **OK**.
5. Complete these fields:

Field	Description
Letter Box	All image data is displayed and the aspect ratio is maintained.
Lens Factor	The amount to stretch an image horizontally. Allowable values can range from 0.00 to 7.99. Enter 1 if you are not using an anamorphic lens.
Presentation	The size and location of the image. By default, the projector uses a 2048 x 1080 panel.
Cropping	Hides unwanted image data.

6. Tap **Save**.

Modify a Screen File

1. Tap **Menu** > **Advanced Setup** > **Screen File Setup**.
2. Select a screen file in the **Current Screen File** list.
3. Modify the screen file settings.
4. Tap **Save**.

Create a MCGD File

Create Measured Color Gamut Data (MCGD) files to correct on-screen colors. A colorimeter is required to complete this procedure.

1. Turn the lamp on and allow it to operate for 20 minutes.
2. Tap **Menu** > **Advanced Setup** > **MCGD File Setup**.
3. Tap **Save As**.
4. Enter a name for the MCGD file in the **Filename** field and then tap **OK**.
5. If the MCGD file will be associated with a 3D channel, tap **Enable 3D** and select a frame rate in the **Frame Rate N:M** list.
6. Tap the option button in the red area of the chromaticity image to display the red test pattern.
7. Measure the red chromaticity with the colorimeter.
8. Record the red chromaticity value.
9. Repeat steps 5 to 7 for the green, blue, white, and black chromaticity measurements. Select the test pattern that matches the color you are measuring.

10. Enter the chromaticity measurements you recorded in step 7 in the red, green, blue, white, and black **x** and **y** fields.
11. Tap **Save**.

Modify a MCGD File

1. Tap **Menu** > **Advanced Setup** > **MCGD File Setup**.
2. Select a MCGD file in the **Current Measured (MCGD) File** list.
3. Modify the MCGD file settings.
4. Tap **Save**.

Create a TCGD File

Typically, Target Color Gamut Data (TCGD) file settings are defined by the content provider and are not modified.

1. Turn the lamp on and allow it to operate for 20 minutes.
2. Tap **Menu** > **Advanced Setup** > **TCGD File Setup**.
3. Tap **Save As**.
4. Enter a name for the TCGD file in the **Filename** field.
5. Tap **OK**.
6. Tap **Display Test Pattern**.
7. Tap the option button in the red area of the chromaticity image to display the red test pattern.
8. Measure the red chromaticity with the colorimeter.
9. Enter the red chromaticity values in the **x**, **y**, and **Gain** fields.
10. Repeat steps 6 to 8 for the magenta, blue, white, yellow, and green chromaticity measurements. Select the test pattern that matches the color you are measuring.
11. Tap **Save**.

Modify a TCGD File

Modifying a Target Color Gamut Data (TCGD) alters the color of the projected image.

1. Tap **Menu** > **Advanced Setup** > **TCGD File Setup**.
2. Select a TCGD file in the **Current Target (TCGD) File** list.
3. Modify the TCGD file settings.
4. Tap **Save**.

Create a New ILS File

1. Tap **Menu** > **Advanced Setup** > **ILS File Setup**

   The ILS File Setup window is not available if the **Enable Automatic ILS** option is not selected on the Lens Setup window. See *Enable Automatic ILS on a Lens* on page 49.
2. Tap **Save As**.
3. Enter a name for the ILS file in the **Filename** field.
4. Tap **OK**.
5. Tap the left or right icons in the **Focus** area to adjust the focus of the image on the screen.
6. Tap the positive or negative icons in the **Zoom** area to adjust the image focus.
7. Tap the forward, backward, left, or right arrow icons in the **Offset** area to move the position of the image on the screen.
8. Tap **Save**.

Edit an Existing ILS File

Changes made to an Intelligent Lens System (ILS) file are applied to all channels to which the ILS file has been applied.

1. Tap **Menu** > **Advanced Setup** > **ILS File Setup**.
2. Select an ILS file in the **Current ILS File** list.
3. Tap the left or right icons in the **Focus** area to adjust the focus of the image on the screen.
4. Tap the positive or negative icons in the **Zoom** area to adjust the image focus.
5. Tap the forward, backward, left, or right arrow icons in the **Offset** area to move the position of the image on the screen.
6. Tap **Save**.

Enable Automatic ILS Adjustment on a Channel

1. On the main screen of the TPC, tap a channel in the **Preferred Channels** pane.
2. Tap the **Lens Adjust** icon.
3. Select **Enable Automatic ILS**.
4. Tap **OK**.

Reset ILS File Settings

You must reset the Intelligent Lens System (ILS) when you move the lens, you have manually adjusted horizontal or vertical offset, focus, or zoom or when a power outage occurs during a channel change.

1. Tap **Menu** > **Advanced Setup** > **ILS File Setup**.
2. Select an ILS file in the **Current ILS File** list.
3. Tap **Quick Reset**.
4. Tap **Yes**.

Add a Lens Serial Number

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens in the **Primary Lens** list.
3. Tap the **Launch Dialog** icon in the **Serial Number** field.
4. Enter the serial number for the lens and then tap **Enter**.
5. Tap **Save**.

Enable Automatic ILS on a Lens

Use this procedure to move the lens to a position specified by the channel settings.

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens in the **Primary Lens** list.
3. Select **Enable Automatic ILS** in the **Intelligent Lens System** area.

Reset the Lens Position on Projector Startup

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens in the **Primary Lens** list.
3. Select **Reset on Startup** in the **Intelligent Lens System** area.

Complete a Full Lens Calibration

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens in the **Primary Lens** list.

3. Tap **Full Calibration** in the **Intelligent Lens System** area.
4. Tap **Yes**.

Reset the ILS and the Lens Position

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens in the **Primary Lens** list.
3. Tap **Quick Reset** in the **Intelligent Lens System** area.
4. Tap **Yes**.

Work with the Scheduler

Use the scheduler to schedule when the projector turns on or off.

Schedule the Projector to Turn On or Off

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Scheduler**.
2. Tap **Enable Scheduler**.
3. Tap and drag the scroll bar to view the available dates.
4. Tap a square below the date and next to the time that you want the projector to turn on or off.
5. Tap **New**.
6. Tap **Power Off** to turn the projector off at a specific date and time.

   - or -

   Tap **Power On** to turn the projector on at a specific date and time.
7. Tap **Start** to enable or disable the scheduled event. New scheduled events are enabled by default.
8. Select a date and a time for the scheduled event.
9. Tap **Weekly** to have the scheduled event occur weekly and then select the days that you want the event to occur.

   - or -

   Tap **Once** to have the scheduled event occur once at a specific date and time.
10. Tap **Expire** and select the date you want a weekly event to expire.
11. Tap **Save**.
12. Tap **OK** to return to the calendar view.

Edit a Scheduled Event

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Scheduler**.
2. Tap and drag the scroll bar to view the available dates.
3. Tap the event you want to edit.
4. Tap **Edit**.
5. Adjust the settings for the event.

6. Tap **Save**.
7. Tap **OK** to return to the calendar view.

Delete a Scheduled Event

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Scheduler**.
2. Tap and drag the scroll bar to view the available dates.
3. Tap the event you want to delete.
4. Tap **Delete**.
5. Tap **OK** to return to the calendar view.

Delete All Scheduled Events

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Scheduler**.
2. Tap **Delete All**.
3. Tap **Yes**.

Turn the Scheduler Off

You need Administrator or Service permissions to complete this procedure.

1. Tap **Administrator Setup** > **Scheduler**.
2. Tap to clear the **Enable Scheduler** checkbox.

View and Modify Projector Settings

Use the procedures in this section to modify projector settings including the touch panel controller (TPC) language, TPC screen brightness, and time settings.

Set Projector and TPC Preferences

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Preferences**.
2. Adjust these settings:

Field	Description
Temperature Units	Display temperature information in Celsius or Fahrenheit.
Image Orientation	The direction of the on screen image.
Luminance Units	Display luminance information in Foot Lamberts or Candela.
Language	The language for the TPC.
Beep on Screen Press	When selected, a sound plays when you tap the TPC screen.
Enable Screen Saver / Screen Saver Delay	Enables a screen saver and determines the frequency that the screen saver appears.
Over Temperature, Fan Failure, Lamp Rotation, Lamp Expiry, Lamp Half Life warning, Light Intensity Warning, LD Log Warning	Opens an alarm window when a pre-defined event occurs.
Brightness	Adjusts the brightness of the touch screen display.
Calibrate Screen	Opens the Calibrate window and starts the TPC calibration.

Adjust Projector Time Settings

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Time Setup**.
2. Adjust these settings:

Field	Description
Time Zone	The time zone where the projector is installed.

Field	Description
24 Hour Time	Displays time in a 24-hour format.
Adjust for Daylight Savings Time	Automatically adjusts the time for daylight savings.
Date and Time	Adjusts the projector date and time.
Set Time	Applies the date and time adjustment settings.
Enable NTP	Turns Network Time Protocol (NTP) clock synchronization on.
NTP Server	The NTP server IP address.
Test NTP	Tests the NTP server settings.

Modify Projector Communication Settings

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Communications Configuration**.
2. Complete these fields:

Field	Description
Device Name	The name of the projector.
IP Address	The IP address of the projector.
Subnet Mask	The subnet mask to which the address belongs.
Gateway	The IP address for the network gateway.
Apply	Applies Ethernet settings.
Serial Speed (Baud)	The baud rate of the serial port. The default is 115200.
Enable SNMP	Enables SNMP.
SNMP V2 / SNMP V3	The SNMP protocol type. Contact Christie for the SNMP V3 user ID and password.
Management IP	The IP address where SNMP information and notifications are sent.
Download MIB to USB	Sends the SNMP Management Information Base (MIB) file to a USB flash drive.
Apply	Applies SNMP settings.
Serial Access	Grants access to serial connections.
Ethernet Access	Grants access to Ethernet connections.

Add a Network Device

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Network Devices Setup**.

2. Tap the check box. If the check box is not selected, the device does not appear in the **Network Devices** menu.
3. Tap the **Launch Dialog** icon in the **Device Name** field and enter a name for the network device.
4. Tap **Enter**.
5. Tap the **Launch Dialog** icon in the **URL** field and enter the URL for the network device.
6. Tap **Enter**.

Access a Network Device

Tap **Menu** > **Network Devices** > **Christie ACT**

To interact with the device tap in the top right corner of the window.

Calibrate the Internal Light Meter

To calibrate the internal light meter to Foot Lamberts you use the Foot Lamberts Calibration wizard. If content is playing when you run the Foot Lamberts Calibration wizard, playback stops. To run the Foot Lamberts Calibration wizard you need Administrator or Service permissions.

1. Tap **Menu** > **Administrator Setup** > **Foot lamberts Calibration**.
2. Tap **Next** and complete the Foot Lamberts Calibration wizard.

View the Microsoft Windows Task Manager

You use the Microsoft Windows Task Manager to view information about programs or processes running on your projector. The Task Manager also provides performance measures for processes.

1. Tap **Menu** > **Service Setup** > **System Access**.
2. Tap **Task Manager**.
3. Tap **OK**.

View the Microsoft Windows Computer Management Console

You use the Microsoft Windows Computer Management console to manage local or remote computer settings.

1. Tap **Menu** > **Service Setup** > **System Access**.

2. Tap **Computer Management**.
3. Tap **OK**.

View Microsoft Windows Explorer

Microsoft Windows Explorer displays the hierarchical structure of files, folders, and drives on your projector.

1. Tap **Menu** > **Service Setup** > **System Access**.
2. Tap **Windows Explorer**.
3. Tap **OK**.

View the Microsoft Network Connections Window

Use the Microsoft Network Connections to view and modify network connections.

1. Tap **Menu** > **Service Setup** > **System Access**.
2. Tap **Network Connections**.
3. Tap **OK**.

View Projector Information

The About window provides projector information including the serial number, the current software version, the Digital Light Processing (DLP) version, the lens and lamp type.

Tap **Menu** > **About**.

Record the Lens Serial Number

1. Tap **Menu** > **Advanced Setup** > **Lens Setup**.
2. Select a lens type in the **Primary Lens** list.
3. Tap the **Launch Dialog** icon and enter the lens serial number.
4. Tap **Enter**.
5. Tap **Save**.

Manage User Accounts

User Access Permissions

This table lists the Touch Panel Controller (TPC) permissions:

Permission	Description
Status	Can view basic projector status, diagnostic information and software version information. This is the default level for Serial Communication sessions.
Operator	Can activate channels and test patterns, view detailed diagnostic logs for in-depth troubleshooting and view server errors. This is the default level at the TPC.
Advanced	Can define all display setups such as source resolution, aspect ratio, image cropping, and color gamut information, optimize light output, record lamp changes, and define setup files as selectable choices for processing a variety of incoming signals.
Administrator	Can perform screen Foot Lambert calibration, define Ethernet settings (IP network address), restore backup files, and upgrade the system software. **NOTE***: Administrators can add users and set user access rights from its own level and below only.*
Service	Can access all windows on the TPC, except marriage.
Marriage	Can access all windows on the TPC, including marriage.

Add a User Account

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **User Accounts**.
2. Tap **Add**.
3. Tap the **Launch Dialog** icon in the **Username** field and enter the user name.
4. Tap **Enter**.
5. Repeat steps 3 and 4 for the **Password** and **Confirm Password** fields.
6. Select access permissions for the user in the **Permissions** list.
7. Tap **Accept**.

Change a User Account Password or Permissions

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **User Accounts**.
2. Tap a user name in the **Username** list.

3. Tap **Edit**.
4. Change the password or the access permissions.
5. Tap **Accept**.

Delete a User Account

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **User Accounts**.
2. Tap a user name in the **Username** list.
3. Tap **Delete**.
4. Tap **Yes**.

Backup, Restore, and Upgrade Projector Files

Add an Upgrade File

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Upgrade**.
2. Tap **Upload**.
3. Select the location of the upgrade file in the **Drive Letter** list.
4. Browse to the location of the upgrade file in the **Folder** list.
5. Tap the upgrade file and then tap **Open**.

Remove an Upgrade File

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Upgrade**.
2. Tap an upgrade file in the **Available Upgrade Files** list.
3. Tap **Remove**.

Install an Upgrade

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Upgrade**.
2. Tap an upgrade file in the **Available Upgrade Files** list.
3. Tap **Next**.
4. Tap a component in the **Component** list.
5. Select one of these options:

Option	Description
Upgrade Different Components Only	Upgrades system components that are newer or older than the currently installed version.
ICP Only Force Install	Forces an ICP install regardless of what current version is installed.

Option	Description
Force Upgrade All	Upgrades all components in the upgrade package.
Factory Install	Removes all configurations and upgrades all components.

6. Tap **Next**.

Back up Projector Settings and Information

You need Service permissions to complete this procedure.

1. Tap **Menu** > **Service Setup** > **File Management**.
2. Tap **Backup**.

Restore a File

You need Service permissions to complete this procedure. You can restore configuration, preference, channel, user, and ICP files.

1. Tap **Menu** > **Service Setup** > **File Management**.
2. Tap **Browse** to the right of the **File to restore** field.
3. Select the location of the upgrade file in the **Drive Letter** list.
4. Browse to the location of the upgrade file in the **Folder** list.
5. Tap the upgrade file and then tap **Open**.
6. Select the type of file to restore in the **Select type** list.
7. Tap **Restore**.
8. Tap **Yes**.

Restore Factory Default Settings

You need Service permissions to complete this procedure. You can restore configuration, reference, channel, and user files.

1. Tap **Menu** > **Service Setup** > **File Management**.
2. Select a file type to restore in the **Select type** list.
3. Tap **Reset Defaults**.
4. Tap **Yes**.

Move Files to the Projector

1. To move files from a USB Flash drive, insert the USB flash drive into the USB port on the side of the touch panel controller (TPC).
2. Tap **Menu** > **Service Setup** > **File Maintenance**.
3. Select a file type in the **File Type** list.
4. Tap and drag a file from the **TPC Files** pane to the **Projector Files** pane.

Delete Projector Files

1. Tap **Menu** > **Service Setup** > **File Maintenance**.
2. Select a file type in the **File Type** list.
3. Tap and drag a file from the **Projector Files** pane to the trash can icon.
4. Tap **Yes**.

Test Patterns

Add or Remove Test Patterns from the Preferred Test Patterns Pane

You need Administrator or Service permissions to complete this procedure.

1. Tap **Menu** > **Administrator Setup** > **Preferred Test Pattern Setup**.
2. To add a test pattern to the Preferred Test Pattern pane, tap and drag a test pattern from the **Unselected Patterns** list to **User Selected (Drag and Drop)** pane.
3. To remove a test pattern from the Preferred Test Pattern pane, tap and drag a test pattern from the **User Selected (Drag and Drop)** pane to the recycle bin in the bottom right corner.

Turn a Test Pattern On or Off

1. Tap the **Test Pattern** ( ) icon in the task bar.
2. Tap **All Test Patterns**.
3. Tap a test pattern in the Preferred Test Patterns pane to turn it on.
4. Tap **Test Pattern Off** to turn the test pattern off.

Display a Full Screen Test Pattern

1. Tap the **Test Pattern** ( ) icon in the task bar.
2. Tap **All Test Patterns**.
3. Double-tap a test pattern in the Preferred Test Patterns pane to turn it on.
4. Tap **Full Screen (Ignore screen file settings)**.

View 3D Content

This section provides information and procedures for setting up and managing 3D presentations.

Display Requirements

To display 3D images you require these items:

- A 3D hardware system:
  - Pi-Cell polarizer for display on a screen that has a silver polarization-preserving surface for use with passive glasses (RealD).
  - Rotating polarizing wheel (external) with passive circular polarizing glasses (MasterImage). Requires a silver screen.
  - IR emitter for controlling the left eye/right eye gating (switching) of active glasses (Xpand).
  - Dual projector 3D - passive glasses (circular or linear). Requires a silver screen.
- A 3D connection cable.
- Power supply for your synchronization output device. The 3D sync port can power output devices.

3D Sync Terminal PIN Map

The 3D Sync terminal is a 15-pin D-sub connector (female) located on the projector communications panel. This table lists the control functions available through the 3D connector.

PIN	Signal Name	Direction	Description
1	+12V	Out	Power to 3D device. Maximum 1A (total between both +12V pins).
2	GND	/	Ground
3	GND	/	Ground
4	RS232_RX	In	Data to projector from 3D device. 1200 Baud, 8 bits, no parity. Currently unsupported.
5	RS232_TX	Out	Data to projector from 3D device. 1200 Baud, 8 bits, no parity. Currently unsupported.
6	CONN_3D_MODE+	Out	SYNC from projector. To projector GPO collector. Compatible with current projector GPIO requirements and restrictions. (24VDC max, 50mA max) 3D ON = Hi logic level = O/P transistor ON 3D OFF = Low logic level = O/P transistor OFF
7	CONN_SYNC+	Out	SYNC from projector. To projector GPO collector. Compatible with current projector GPIO requirements and restrictions. (24VDC max, 50mA max)

PIN	Signal Name	Direction	Description
8	3D_INPUT_REFRERENCE+	In	3D L/R Input Reference (P) (Voltage Limit: 2 VDC to 12VDC)
9	+12V	Out	Power to 3D system. Maximum 1A (Total between both +12V pins)
10	3D_INPUT_REFRERENCE-	In	3D L/R Input Reference (N) (Voltage limit: 1.4VDC to 12VDC)
11	3D_DISPLAY_REFERENCE+	In	3D L/R Input Reference (P) (Voltage limit: 1.4VDC to 12VDC)
12	3D_DISPLAY_REFERENCE-	In	3D L/R Input Reference (P) (Voltage limit: 1.4VDC to 12VDC)
13	CONN_3D_MODE-	Out	3D mode state from projector. From projector GPO emitter. Compatible with current projector GPIO requirements and restrictions. (24VDC max, 50mA max)
14	CONN_SYNC-	Out	SYNC from projector. From projector GPO emitter. Compatible with current projector GPIO requirements and restrictions. (24DC max, 50mA max)
15	Not connected		

Hardware Setup

Use an infrared emitter to control gating in active glasses, a polarizing Z-screen (Pi-cell) with passive glasses, or filter wheel with passive glasses.

	RealD Z-screen	RealD XL Box	Xpand	Master Image	Dual Projector
Installed/ Mounted Components	Z-screen mounted in front of the projection lens	XL box mounted in front of the projection lens	None	Wheel installed in front of the projector	Polarizing plates in front of lenses
Silver Screen	Yes	Yes	No	Yes	Yes
3D Glasses	Polarizing circular glasses	Polarizing circular glasses	Active glasses	Circular polarized glasses	Polarizing circular or linear glasses

Create a High Frame Rate 3D File

Use this procedure to create 24Hz, 48Hz, and 60Hz high frame rate 3D files. These files allow you to display content with different frame rates consecutively.

1. Tap **Menu** > **Advanced Setup** > **High Frame Rate 3D File Setup**.
2. Select a 3D frame rate file in the **Current 3D File** list.

3. Complete these fields:

Field	Description
3D Sync Input Mode	Specifies whether a specific frame of input data has left eye or right eye data. Select **Use White Line Code (true and inverted)** if you are using a single 3D input signal in which an embedded white line at the bottom of each frame identifies left and right, and an additional separate 3D stereo sync input at the GPIO port is not present. The bottom row of the left-eye sub-field should be pure white for the left-most 25% of the pixel row and pure black for the remainder of the row. The bottom row of the right-eye sub-field should be pure white for the left-most 75% of the pixel row and pure black for the remainder of the row. Select **Use Line Interleave for 3D source data only**. When specified, the ICP will de-interleave each line into the left image or right image in memory as specified. Line interleave can be used with PsF 3D data (left and right data for one field, then left and right data for second field).
L/R Display Reference	Specifies which frame of eye data to display during a specific display frame. This signal is referenced to the display frame rate which is specified by the Frame Rate N:M.
Frame Rate N:M	Sets how many frames to display per number of frames that form one complete image. Increase the display frame rate to reduce flicker from your source(s).
L/R Display Sequence	Defines the frame order (L-R or R-L) required for 3D perspective. This option only has meaning when the Frame Rate factor M is equal to 2. For this case, 2 input frames of data are required to constitute a complete frame of image data. This parameter tells the system which frames go together to make a complete image. When using **Line Interleave** as the **3D Sync Input Mode**, ensure that **Left (L1R1 L2R2)** is selected.
3D Sync Polarity	Keeps 3D stereo sync output the same as input (true) or reversed (inverted). **True**: 3D L/R sync output from GPO will match L/R sync input. **Inverted**: 3D L/R sync output from GPO will be the opposite of sync input (left = right, right = left).
Dark Time	Creates a blank time interval between left and right frames to allow for LCD shutter glasses, Z screen, or rotating 3D wheel to synchronize the output. See Dark Time and Output Delay Notes below. Values between 0 and 65535 are accepted. Tap the **Launch Dialog** button to enter the dark time value.
Output Delay	The non-image time in Microseconds (µ). Offset 3D stereo sync output in relation to dark time interval. Acceptable values are between -32768 and 32767. A positive offset adds a delay and a negative offset starts playback early. Tap **Launch Dialog** to enter the output delay value.
Phase Delay	The degree of reference between the left and right sync output. Values between -180 and 180 are accepted. Tap **Launch Dialog** to enter the phase delay value.

4. Tap **Save**.

Edit the Default 3D Lamp File

For 3D images to display correctly, you must edit the default 3D lamp file to match the specifications of your 3D hardware.

1. Tap **Menu** > **Advanced Setup** > **Lamp Power / LiteLOC™ Setup**.
2. Select **Default 3D** in the **Current Lamp File** list.
3. Set the brightness percentage for the lamp in the **Power %** field.
4. Tap **Save**.

Define a Measured Color Gamut Data File

For 3D images to display correctly, you must define an MCGD file to match the specifications of your 3D hardware.

1. Turn the lamp on and allow it to operate for 20 minutes.
2. Tap **Menu** > **Advanced Setup > MCGD File Setup**.
3. Hold a pair of 3D glasses in front of the light meter to determine the new x and y color coordinates for Red, Green, Blue, and White. Use the same light path that you use to display a show.
4. Enter the x and y values in the **Red**, **Green**, **Blue** and **White** fields.
5. Tap **Save As**.
6. Enter **3D Onsite** in the **File Name** field.
7. Tap **Save**.

Edit the 3D Flat 1998 x 1080 Channel

1. Tap **Menu** > **Channel Setup**.
2. Select **3D Flat 1998x1080** in the **Channel Name** list.
3. Tap **Config 1** in the left pane and edit these settings:
    a. Select **292-Dual** in the **Input** list.
    b. Select **YCrCb 4:2:2 10 bits x2** in the **Data Format** list.
    c. Select **1998x1080 1.85 Flat** in the **Source File** list.
    d. Select **Flat** in the **Screen File** list.
4. Tap **Config 2** in the left pane and edit these settings:
    a. Select **3D Onsite** in the **Measured Color** list. If this option is not available, see Define a Measured Color Gamut Data File on page xiv-68.

b. Select **DC28_DCIXYZE_314_351** in the **Target Color** list.

c. Select **YCxCz Inverse ICT** in the **Color Space** list.

d. Select **Gamma 2.6** in the **Gamma** list.

e. Select **Linear_9x9x9** in the **LUT-CLUT** list.

5. Tap **3D Control** in the left pane and edit these settings:

a. Select **Line Interleave** in the **3D Sync Input Mode** list.

b. Select a frame rate suitable to your 3D system in the **Frame Rate N:M** list. For example, for 24Hz 3D, select 2:2, 4:2, or 6:2 for single, double, and triple flash.

c. Select **Left (L1R1 L2R2)** in the **L/R Display Sequence** list.

d. Select **True** in the **3D Sync Polarity** list.

e. Enter **430** in the **Dark Time** field or enter a value appropriate for your 3D hardware.

f. Enter **-120** in the **Output Delay** field or enter a value appropriate for your 3D hardware.

g. Enter **0** in the **Phase Delay** field or enter a value appropriate for your 3D hardware.

Edit the 3D Scope 2048 x 858 Channel

1. Tap **Menu** > **Channel Setup**.
2. Select **3D Scope 2048x858** in the **Channel Name** list.
3. Tap **Config 1** in the left pane and edit these settings:

a. Select **292-Dual** in the **Input** list.

b. Select **YCrCb 4:2:2 10 bits x2** in the **Data Format** list.

c. Select **2048x858 2.39 Scope** in the **Source File** list.

d. Select **Scope** in the **Screen File** list.

4. Tap **Config 2** in the left pane and edit these settings:

a. Select **3D Onsite** in the **Measured Color** list. If this option is not available, see Define a Measured Color Gamut Data File on page xiv-68.

b. Select **DC28_DCIXYZE_314_351** in the **Target Color** list.

c. Select **YCxCz Inverse ICT** in the **Color Space** list.

d. Select **Gamma 2.6** in the **Gamma** list.

e. Select **Linear_9x9x9** in the **LUT-CLUT** list.

5. Tap **3D Control** in the left pane and edit these settings:

a. Select **Line Interleave** in the **3D Sync Input Mode** list.

b. Select **6:2** in the **Frame Rate N:M** list.

c. Select **Left (L1R1 L2R2)** in the **L/R Display Sequence** list.

d. Select **True** in the **3D Sync Polarity** list.

e. Enter **430** in the **Dark Time** field or enter a value appropriate for your 3D hardware.

f. Enter **-120** in the **Output Delay** field or enter a value appropriate for your 3D hardware.

g. Enter **0** in the **Phase Delay** field or enter a value appropriate for your 3D hardware.

Display 3D Diagnostic Test Patterns

You can use 3D test patterns to verify your 3D hardware is functioning correctly.

1. Tap **Menu** > **Channel Setup**.
2. Select a 3D channel in the **Channel Name** list.
3. Tap **3D Test Patterns**.
4. Tap a test pattern.
5. Put on a pair of 3D glasses.
6. Look at the on-screen image, and then close your left eye and look at the image through your right eye. Switch when the image alternates.

3D Test Pattern	Action
RGB-12bit -3D Dynamic Range	Alternates between 2 images.
RGB-12bit-3D Four Quadrant	Alternates between 2 images.
RGB-12bit-3D Full White	Alternates between 2 100% white images.
RGB-12bit-3D Half Descending	Alternates between 4 images.
RGB-12bit-3D Horizontal Ramp	Alternates between 2 horizontal ramp images.
RGB-12bit-3D L-Pattern	Alternates between 2 images.

Verify 3D Cinema Content

1. Put on a pair of 3D glasses.
2. Play the 3D content.
3. Verify the left and right eye display correctly.
4. If the image is reversed:

   a. Tap **Menu** > **Channel Setup** on the projector touch pad controller (TPC).

   b. Select a 3D channel in the **Channel Name** list.

   c. Select **Inverted** in the **3D Sync Polarity** list.

Troubleshooting

This section provides information and procedures for resolving common projector issues. If you cannot resolve a projector issue, contact Christie support. In order that a support representative can better assist you, have the model and serial number of your projector ready. For contact information see the back cover of this document.

Projector Functionality

Issue	Resolution
Projector does not turn on	• Verify the power cord is connected to the projector and the AC power supply correctly and the input selector switch is in the correct position. • Verify the wall circuit breaker is on. If there is a problem with the wall circuit breaker turning off, contact a certified electrician. • Verify the touch panel controller (TPC) is on and the LEDs on the input panel are illuminated. If the TPC is off and there are no LEDS illuminated, verify the AC outlet to which the projector is connected is working and the TPC is connected to the projector. If the AC outlet is working and the TPC is connected to the projector, contact Christie support. • If the TPC is connected to the projector and the LEDs on the input panel are illuminated, on the TPC, verify in the **Operational Status** region of the **Main** panel does not indicate a PIB failure.
Touch panel controller	• Make sure the TPC is connected to the projector. • If the TPC fails to initialize, make sure the compact flash on the left side is installed correctly. • If the TPC fails to initialize, restart the projector. • If the location of button presses on the screen are not interpreted correctly, the TPC screen may need recalibrating. Tap **Menu** > **Administrator Setup > Preferences**. Tap **Calibrate Screen** and follow the on screen instructions.
Cannot establish communication with projector	Verify all input devices have the same subnet mask and gateway and unique IP addresses.
Projector does not move from standby to full power mode	• Check the touch panel controller (TPC) for error messages. • If a failure with PIB communications exists, reseat the board. • Check the Ethernet status LED on the rear of the TPC. • Verify that the internal fans are operating. • Look through the service panel and verify that the green LED is lit. This indicates the LVPS is operating. • Check all of the harness connections between LVPS and backplane. Pay particular attention to the small, white connecter on the LVPS. • Replace the LVPS.
DMD over-temperature warning	• Tap **Menu** > **Status** and then **Temperatures** in the left pane. Verify if the DMD temperatures are too high. If the temperatures are too high, turn the lamp off and allow the cooling fans to cool the projector. • Check the condition of the air filters and clean or replace them if they appear to be dirty. • Verify that all fans are operating.

Lamp Functionality

Issue	Resolution
Lamp does not ignite	• Tap **Menu** > **Advanced Setup** > **Lamp History** and verify the number of hours the lamp has operated. Replace a lamp nearing the end of its operational life. • Tap **Menu** > **Status** and then **Interlocks** in the left pane. Check and correct all interlock failures. • Tap **Menu** > **Status** and then **All Alarms** in the left pane. If a ballast communication error has occurred, restart the projector and turn the lamp on. • Tap **Menu** > **Status** and then **Temperatures** in the left pane. Verify if the DMD temperatures are too high. If the temperatures are too high, turn the lamp off and allow the cooling fans to cool the projector. Ensure the projector is properly ventilated and the air filters are not blocked. • Listen for a clicking noise that indicates the ballast is attempting to strike the lamp. If you do not hear a clicking noise, there might be a problem with the ballast. Contact a Christie accredited service technician to resolve the issue. • If you hear a brief clicking noise, but the lamp does not ignite, replace the lamp.
Lamp suddenly turns off	• Tap **Menu** > **Advanced Setup** > **Lamp Power/LiteLOC Setup**. Increase the lamp power. • Tap **Menu** > **Status** and then **Interlocks** in the left pane. Review and correct all interlock failures. • Tap **Menu** > **Status** and then **Temperatures** in the left pane. Verify if the DMD temperatures are too high. If the temperatures are too high, turn the lamp off and allow the cooling fans to cool the projector. Ensure the projector is properly ventilated and the air filters are not blocked. • Replace the lamp.
LiteLOC™ Not Working	• Tap **Menu** > **Advanced Setup** > **LampPower/LiteLOC™ Setup.** Tap **Enable LiteLOC™**. • If the lamp power is at the maximum setting to maintain a LiteLOC™ setting, LiteLOC™ is automatically disabled. Reduce the LiteLOC™ setting, or install a new lamp.

Display Issues

Issue	Resolution
No image appears	• Make sure the lamp is on. • Make sure the douser is open. • Make sure a white test pattern is selected. • Make sure the service doors are closed. • Verify the marriage icon on the main window of the touch panel controller (TPC) is green.

Issue	Resolution
Flicker, shadows, or dimness	• Ensure the douser is open. • Align the lamp. • Tap **Menu** > **Advanced Setup** > **LampPower/LiteLOC™ Setup**. Monitor the **Power %** field to determine if the power is consistent or if it varies. Increase the lamp power. Lamps which are near end of service may not operate reliably at a lower power setting. • Fold mirror misalignment. Contact your Christie accredited service technician to resolve the issue. • Integrator rod misalignment. Contact your Christie accredited service technician to resolve the issue.
Blank screen, no display of cinema image	• Ensure the lens cap is not on either end of the lens. • Ensure the lamp is **ON**. • Confirm all power connections are still OK. • Ensure the douser is **OPEN** by verifying the state of the douser on **Main** panel. • Ensure any test pattern other than the full black test pattern displays properly. • Verify the correct display file is selected. • For cinema connections, verify the correct port is selected.
Severe motion artifacts	Verify if there is a synchronization problem with reversed 3-2 pull-down in the 60Hz-to-24Hz film-to digital conversion and correct it at the source.
Image appears vertically stretched or squeezed into the center of the screen	Open the Source File Setup window and verify the resolution and aspect ratio settings. Open the Screen File Setup window and verify the lens factor settings.
Inaccurate display colors	Tap **Menu** > **Channel Setup**. Tap **Config 1** in the left pane and verify the correct value is selected in the **PCF** list. Tap **Config 2** in the left pane and verify the correct value is selected in the **Color Space** field.
Display is not rectangular	• Verify the projector is level and the lens surface and screen are parallel to one another. • Tap **Menu** > **Advanced Setup** > **Screen File Setup** and verify the settings for the screen file are correct.
Display is noisy	• Verify the cables connecting the input device to the projector meet the minimum requirements and are undamaged. • Add signal amplification or conditioning if the distance between the input device and the projector exceeds 25 feet. • Turn the projector off and then on again.
Display has suddenly stopped	Turn off the projector and unplug the power cord from the power source. Plug the projector power cord into a power source and turn the projector on.

Issue	Resolution
The projector is on, but alternate content does not display	• Make sure the lens cover is removed from the lens. • Make sure the lamp is on. • Make sure the douser is open. • Tap on the main TPC screen. • Tap **Menu** > **Channel Setup**. Verify the correct channel is selected and the settings are correct. • Ensure an active source is connected properly. Check the cable connections and make sure the alternative source is selected. • Verify you can select test patterns. If you can, check your source connections again.
The display is jittery or unstable	• Verify that the input device is connected properly. If the input device is not connected properly, the projector repeatedly attempts to display an image. • The horizontal or vertical scan frequency of the input signal may be out of range for the projector. • The sync signal may be inadequate. Correct the source problem.
Portions of the display are cut off	If you have resized the image, adjust the resizing settings until the entire image is visible and centered.
Inconsistent picture quality	Verify the quality of the signal from the input source.

Maintenance

This section provides information and procedures for performing projector maintenance. You should read through this section in its entirety before performing maintenance activities. When you perform projector maintenance, obey all warnings and precautions.

Inspect Ventilation

Vents and louvers in the projector covers provide ventilation, both for intake and exhaust. Never block or cover these openings. Do not install the projector near a radiator, heat register, or within an enclosure. To make sure there is adequate airflow around the projector, keep a minimum clearance of 50cm (19.69”) on the left and right sides of the projector.

Check the Coolant Level

⚠DANGER	HAZARDOUS SUBSTANCE! The coolant used in the projector contains ethylene glycol. Use caution when handling. DO NOT ingest coolant. Failure to comply results in death or serious injury.
⚠WARNING	Use JEFFCOOL E105 coolant only. Using unapproved coolant can damage the projector damage and void the warranty. Failure to comply could result in death or serious injury.

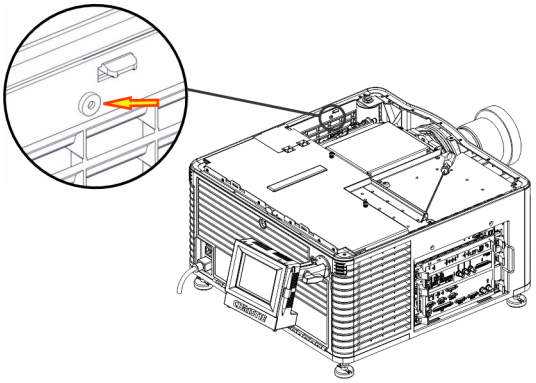
The liquid cooling system keeps the digital micromirror device (DMD) heat sinks cool. Check the coolant level every 6 months, by removing the top projector lid. The coolant level should be above the minimum level indicator. If the liquid cooling system fails, an over-temperature alarm window appears in the touch panel controller (TPC). The lamp turns off if the projector enters an over-temperature state for longer than one minute.

When adding coolant, use the refill bottle with the nozzle provided in the Liquid Coolant Fill Service Kit (P/N: 003-001837-XX). When refilling, use caution not to spill or let any of the coolant drip on or near the electronics. After filling the reservoir, check the coolant hoses for bends which may restrict fluid flow.

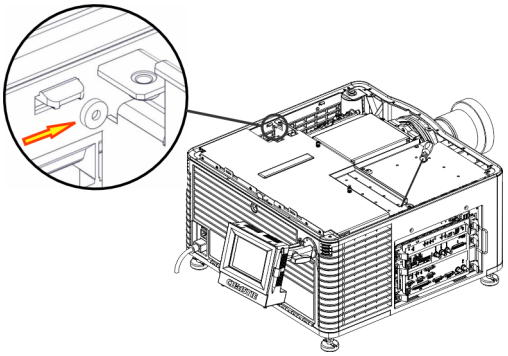
If coolant drips on electronics or other nearby components, blot the affected area using a dust-free optical grade tissue. It is recommended you blot a few times, discard the tissue and use a new tissue to blot the area again. Keep repeating this cycle until the coolant is removed. Then lightly moisten a new tissue with deionized water and blot the area again. Use a dry tissue to dry the area.

Clean the Radiator Filter

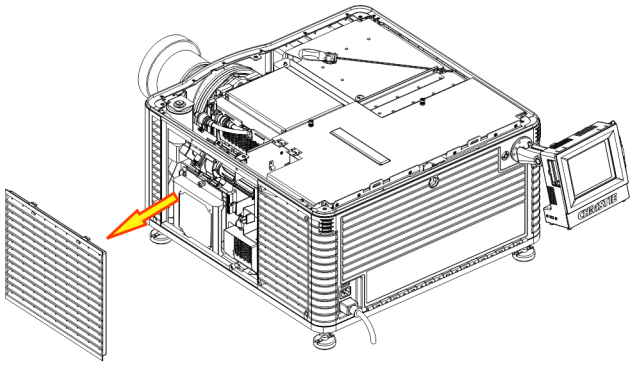
1. Tap and hold the red power button on the TPC **Main** panel to turn the lamp and projector off.
2. Allow the lamp to cool for a minimum of 15 minutes.
3. Unplug the projector.
4. Remove the top lid.
5. Reach into the projector and then loosen the first service panel screw.



6. Open the integrator rod access door and loosen the second service panel screw.



7. Push the clips on the top of the service panel down and out to remove the service panel.



8. Loosen the thumbscrew securing the radiator filter door.
9. Pull the filter up and out and then wash the radiator filter with water and a mild detergent or clean it with compressed air.
10. When the filter is completely dry, reinstall it and then install the service panel and top lid.

Inspect the Lamp

DANGER Always disconnect the projector from AC power and wear authorized protective safety gear. Failure to comply results in death or serious injury.

- Check the contact surfaces of the anode (positive) and the cathode (negative) connections for cleanliness.
- Clean electrical contact surfaces every 5000 hours or after two lamp changes to prevent contact resistance from scorching connectors. Use an approved contact cleaner.
- Verify that all electrical and lamp connections are secure.

Inspect and Clean Optics

Unnecessary cleaning of optics can increase the risk of degrading delicate coatings and surfaces. If you are not a qualified service technician, you can only inspect and clean the lens. Do not perform maintenance on other optical components. Check these components periodically in a clean, dust-free environment using a high-intensity light source or flashlight. Clean them only when dust, dirt, oil, fingerprints or other marks are obvious on the projected image. Never touch an optical surface with your bare hands. Always wear latex lab gloves.

These are the recommend tools for removing dust or grease:

- Soft camel-hair brush
- Dust-free blower - filtered dry nitrogen blown through an anti-static nozzle.
- Dust-free lens tissue, such as Melles Griot Kodak tissues (18LAB020), Opto-Wipes (18LAB022), Kim Wipes or equivalent.

- For the lens only - lens cleaning solution such as Melles Griot Optics Cleaning Fluid 18LAB011 or equivalent
- Cotton swabs with wooden stems.
- Lens cleaning cloth or microfiber such as Melles Griot 18LAB024 or equivalent.

Clean the Lens

A small amount of dust or dirt on the lens has minimal effect on image quality-to avoid the risk of scratching the lens, clean the lens only if absolutely required.

Remove Dust

1. Brush most of the dust off with a camelhair brush or use a dust-free blower.
2. Fold a microfiber cloth and wipe the remaining dust particles off the lens with the smooth portion of the cloth that has no folds or creases. Do not apply pressure with your fingers. Instead, use the tension in the folded cloth to remove the dust.
3. If significant dust remains on the lens surface, dampen a clean microfiber cloth with lens cleaning solution and wipe gently until clean.

Remove Fingerprints, Smudges, or Oil

1. Brush most of the dust off with a camelhair brush or use a dust-free blower.
2. Wrap a lens tissue around a swab and soak it in lens cleaning solution. The tissue should be damp but not dripping.
3. Gently wipe the surface using a figure eight motion. Repeat until the blemish is removed.

Replace the Lamp

⚠DANGER

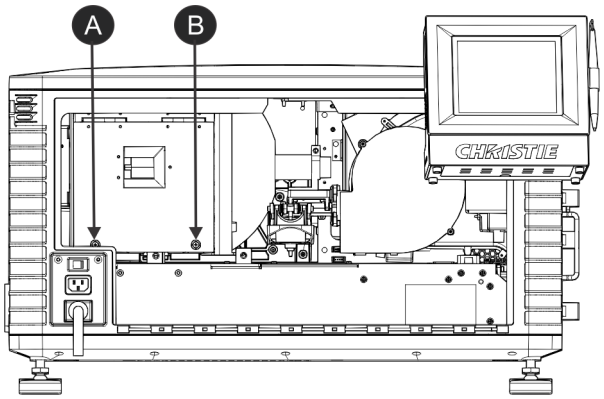
- Lamp replacement must be performed by a qualified service technician. Failure to comply results in death or serious injury.
- EXPLOSION HAZARD. Wear authorized protective clothing whenever the lamp door is open and when handling the lamp. Never twist or bend the quartz lamp body. Use the correct wattage lamp supplied by Christie. Failure to comply results in death or serious injury.
- Make sure those within the vicinity of the projector are also wearing protective safety clothing. Failure to comply results in death or serious injury.
- Never attempt to remove the lamp when it is hot. The lamp is under pressure when hot and may explode, causing personal injury, death, or property damage. Allow the lamp to cool completely before replacing it. Failure to comply results in death or serious injury.

⚠WARNING

Improper installation of the lamp can damage the projector. Failure to comply could result in death or serious injury.

Remove the Existing Lamp

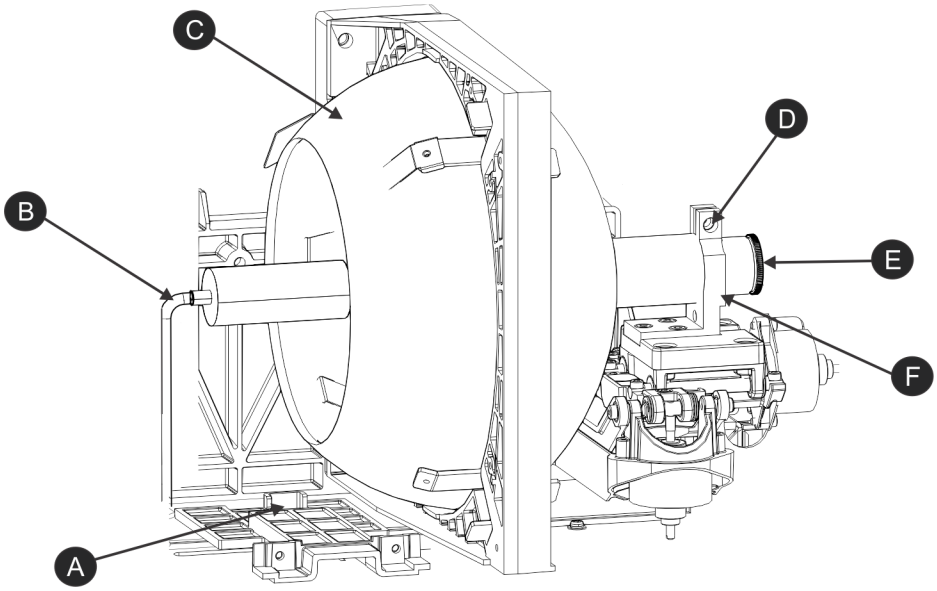
1. Tap and hold the red power button on the TPC **Main** panel to turn the lamp and projector off.
2. Allow the lamp to cool for a minimum of 15 minutes.
3. Unplug the projector.
4. Put on your protective clothing and face shield.
5. Insert the key in the lock on the lamp door, turn the key, and then open the lamp door. Do not place heavy objects on the open lamp door.
6. Loosen the two thumbscrews (A and B) and open the lamp access door.



7. Remove the old lamp and inspect the reflector:
    a. Remove the screw securing the anode wire (B).
    b. Loosen the cathode screw (D) on the cathode clamp (F).
    c. Hold the lamp from the anode end and carefully unscrew and remove the cathode nut (E).
    d. Hold the lamp from the anode end and carefully slide out ensuring not to make contact with the reflector.
    e. With your free hand guide the cathode end out of the reflector, on an angle through the lamp access door.
    f. Before placing the old lamp into the protective case make sure the cathode nut is reinstalled. Place the lamp, within the case, on the floor where it cannot fall or be bumped.

⚠WARNING Handle the box with extreme caution - the lamp is hazardous even when packaged. Dispose of lamp box according to local area safety regulations. Failure to comply could result in death or serious injury.

g. With the lamp removed, visually inspect the reflector and clean if necessary.



A	Anode Terminal
B	Anode Wire
C	Reflector
D	Cathode Screw
E	Cathode Nut
F	Cathode Clamp

8. Remove the new lamp from the protective case.
9. Loosen the cathode screw and remove the cathode nut from the lamp.

Install the New Lamp

⚠CAUTION Handle the lamp by the cathode/anode end shafts only, never the glass. DO NOT over-tighten. DO NOT stress the glass in any way. Check leads. Make sure the anode (+) lead between the lamp and igniter is well away from any projector metal, such as the reflector or fire wall. Failure to comply could result in minor or moderate injury.

1. Remove the tape from the ends of the protective case.
2. Remove the plastic packing material from the lamp.
3. Remove the cathode nut from the lamp before removing it from the case.
4. Hold the anode end of the new lamp in your left hand and angle it up through the hole in the back of the reflector assembly. Insert your right index and middle finger through the back of the

reflector and guide the lamp onto the cathode clamp. Be careful not to hit the lamp against the reflector.

5. Thread on and hand-tighten the cathode nut. Make sure the smooth portion of the nut is against the cathode clamp.
6. Tighten the cathode clamp (F) with a hex key.
7. Align the ring terminal on the anode wire (B) with the mounting position ensuring the crimped side of the wire is facing out. Tighten the anode screw.

   Route anode lead away from nearby metal surfaces.
8. Close the lamp access door and tighten the 2 thumbscrews.
9. Close and lock the rear access door. Make sure the hex key is placed back into its holder before closing the rear access door.
10. Connect the projector to AC power and then turn the projector on.
11. Tap **Menu** > **Advanced Setup** > **Lamp Change Wizard**.
12. Tap **Next**.
13. Complete these fields:

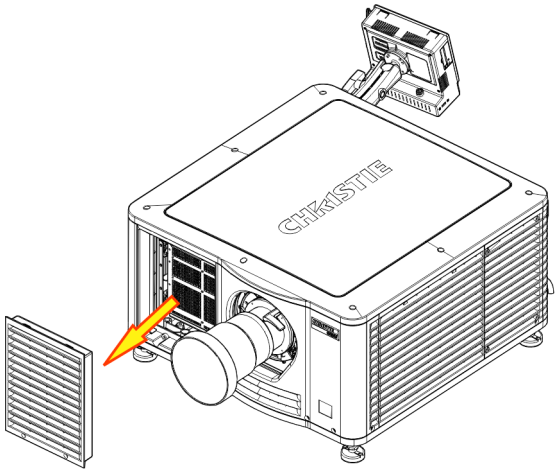
Field	Description
Type	The lamp type.
Serial Number	The lamp serial number.
Reason for Change	The reason the lamp was changed.
Lamp Expiry (Hours)	The number of hours the lamp can operate before replacement. This field is auto-populated.
Hours Used	The number of hours the lamp has operated before installation.

14. Tap **Save**.
15. Tap **Next**.
16. Align the lamp. See *Align the Lamp with LampLOC* on page 17.

Inspect the Card Cage Filter

Use only high efficiency Christie approved filters. Never operate the projector without the filter installed.

You should check the condition of the card cage air filter monthly. Clean or replace the card cage air filter sooner if you are operating the projector in a dusty or dirty environment. The filter is located on the left side of the projector behind the air filter cover.



1. Loosen the 2 captive screws on the bottom of the filter cover.
2. Pull the cover out and down.
3. Slide the air filter out and inspect it.
4. If the filter appears dirty and you cannot see through it, replace it with a new paper filter, or clean it if it is a washable filter. See *Cleaning a Washable Filter* on page 82.

   If the filter appears clean, continue to step 4.
5. Replace the air filter with the airflow indicator facing toward the projector.
6. Install the air filter cover by inserting the 2 bottom tabs and then pushing the cover closed.
7. Tighten the 2 captive screws.

Cleaning a Washable Filter

If the amount of dirt on the filter is minimal, use a vacuum or compressed air to remove it. If you use compressed air, the air must move through the filter in the opposite direction of the air flow indicator on the side of the filter.

⚠WARNING The installation of a filter that has not been allowed to dry completely can cause an electrical short and damage the projector.

1. Hold the filter on an angle under warm running water so the water flows through the filter in the opposite direction of the air flow indicator on the side of the filter.
2. Rinse the filter thoroughly.
3. Submerge the filter for a minimum of 30 minutes in a container of warm water and two tablespoons of mild detergent or liquid dish soap.

   If the filter is extremely dirty, move the filter from side to side occasionally, or remove the excess dirt by brushing both sides of the filter with a soft brush.
4. Rinse the filter thoroughly by holding it on an angle under cool running water. The air flow arrow on the side of the filter should face down.

5. Repeat steps 3 and 4 if the filter still appears dirty.
6. Shake the filter over a container until most of the water is removed.
7. Place the filter on its edge on a flat, stable surface and allow it to dry thoroughly.
8. To confirm that the filter is dry, place it over a dry paper towel and shake it. If the paper towel remains dry, the filter can be installed in the projector.
9. Record the date the filter was cleaned.
10. Replace the filter following the instructions for the specific filter. See *Inspect the Card Cage Filter* on page 82.

Replace the Lens

The lens seals the projection head, preventing contaminants from entering the main electronics area. Do not operate the projector without a lens installed. Install a lens plug when you install or transport the projector.

1. Tap and hold the red power button on the TPC **Main** panel to turn the lamp and projector off.
2. Allow the lamp to cool for a minimum of 15 minutes.
3. Disconnect the projector from AC power or turn the circuit breaker off.
4. Install the lens cap and turn the lens clamp to the open position.
5. If necessary, remove the 2 cap screws securing the lens to the lens mount using a hex key.
6. Pull the lens out of the lens mount and then install a small lens cap on the rear of the lens.
7. Remove the small rear cap from the new lens. Keep the front cap on.
8. Align the tabs on the lens plate with the lens mount. Insert the lens until it connects with the magnets on the mount. When the lens contacts the magnetic plates it is seated correctly.
9. Secure the lens clamp by rotating it clockwise.
10. Tighten the lens mount cap screws for added stability.
11. Remove the lens cap from the front of the lens.

Specifications

This section provides detailed specifications for the Christie CP2215 projector. Due to continuing research, specifications are subject to change without notice.

Display

Panel Resolution and Refresh Rate

Item	Description
Pixel format (H x V square pixels)	2048 x 1080
Processing path	23.97 - 240Hz

Achievable Brightness (Measured at Screen Center)

Lamp	Minimum	Nominal	Maximum
1.4kW (CDXL-14M)	5,260 lumens	5,850 lumens	6,500 lumens
1.6kW (CDXL-16M)	7,200 lumens	8,000 lumens	8,900 lumens
1.8 kW (CDXL-18SD)	9,500 lumens	10,570 lumens	11,750 lumens
2.0 kW (CDXL-20SD)	10,560 lumens	11,740 lumens	13,050 lumens
2.3kW (CDXL-23S)	12,000 lumens	13,500 lumens	15,000 lumens

Achievable Contrast Ratio

≥ 450:1 ANSI

≥ 2000:1 Full Frame On/Off

Color and Gray Scale

Item	Description
Displayable colors	35.2 trillion
Gray Scale resolution	45 bits total linear, 15 bits per RGB component

White Point

Item	Value
Nominal White (full white, after calibration to Color Verification mode, Theatres)	*x* = 0.314 ± 0.006 y = 0.351 ± 0.006

Gamma

Item	Value
Theater (nominal)	2.6 ± 5%

Control Signal Compatibility

Ethernet Port

Item	Description
Interface	10Base-T/100-Base-TX
Connector	Female RJ-45
Bit Rate	10 Mbps or 100 Mbps half and full duplex

RS232-PIB

Item	Description
Interface	TIA-232
Connector	9-pin subminiature D, female
Bit Rate	115,200 (default) bps
Flow Control	Hardware (RTS/CTS)
Data Format	1 start bit, 8 data bits, 1 stop bit, no parity
Communication Protocol	Christie Serial Protocol

RS232-ICP

Item	Description
Interface	TIA-232
Connector	9-pin subminiature D, female
Bit Rate	38,400 (default), 57,600, and115,200 bps (not auto-detected)
Flow Control	Hardware (RTS/CTS)
Data Format	1 start bit, 8 data bits, 1 stop bit, no parity
Communication Protocol	Proprietary (see Texas Instruments specification 2509066)

GPIO Terminal

Item	Description
Interface	Opto-LED inputs, transistor outputs
Number of I/O Lines	16 – 8 inputs, 8 outputs, 1 health signal output
Connector	37-pin subminiature D, female
Type of Connection	Opto-isolated
Input Current	5mA nom., 50mA max.
Input Forward Voltage Drop	1.1V nom., 1.4V max. (@ 5mA)
Output current	50mA max.

SCCI Terminal

Item	Description
Interface	Opto-LED inputs, TTL voltage output
Number and type of I/O	Input 1 – Lamp Off Input 2 – Lamp On Input 3 – Douser Open Input 4 – Douser Closed Output 1 – Projector Health (high = health ok)
Connector	9-pin subminiature D, female
Input Current	5mA nom., 50mA max.
Input Forward Voltage Drop	1.1V nom., 1.4V max. (@ 5mA)

3D Terminal

See *3D Sync Terminal PIN Map* on page 65.

Item	Description
Interface	Proprietary 3D connector
Connector	15-pin subminiature D, female
Bit Rate	1,200 bps
Data Format	1 start bit, 8 data bits, 1 stop bit, no parity
Communication Protocol	RS232 and GPIO

USB 1 Terminal

Item	Description
Interface	Universal Serial Bus 2.0
Connector	USB Device Standard Size (Series “A”)
Maximum Bit Rate	12 Mbps
Communication Protocol	Texas Instruments Proprietary

USB 2 Terminal

Item	Description
Interface	Universal Serial Bus 2.0
Connector	USB Device Standard Size (Series “B”)
Maximum Bit Rate	12 Mbps
Communication Protocol	Texas Instruments Proprietary

MALM Terminal

Item	Description
Interface	3.3V CMOS
Connector	9-pin subminiature D, female
Number of I/O Lines	4 GPIO

Touch Panel Controller

Item	Description
Type of Display	Color VGA TFT LCD, backlit
Display Size	144.8 mm (5.7 inches) diagonal
Display Resolution (H x V pixels)	640 x 480
Maximum Dimensions (W x H x D)	195 mm x 148 mm x 58 mm
Integrated Operating System	Microsoft Windows® XPe
Communication Interface with Projector	10/100 Base-T Ethernet
Power Requirement	1.02 A max. at 24VDC ± 10%
Interface Connector	12-pin Circular connector (push-pull)

Power Requirements

AC Input (A)

Below 200VAC, when the lamp is ignited, a 25 A input surge current might occur for three seconds.

Item	Description
Circuit Breaker	20A
Voltage Range	200 - 240 VAC
Line Frequency	50 Hz - 60 Hz nominal
Inrush Current	<85 A maximum
Current Consumption	16 A maximum (at 200 VAC)
Power Consumption	3200 W maximum
Current Rating of AC Input	20A (Outlet is IEC 320-C19)
Line Cord Plug Type	NEMA 6-20P

UPS AC Input (B)

Item	Description
Activation	Discrete switch above the power inlet cord(s)
Current Rating of AC Input	8A (Outlet is IEC-320-C13)
Supported UPS Type	Universal 100-240VAC
Power Consumption	270 W typical (@ 100 VAC with a power factor of 0.9)

Lamp

The ballast is power regulated and has a maximum current of 97A. Therefore the maximum power specification for a given lamp may not be achievable until the lamp has aged, since lamp voltage increases with hours of use.

Projectors typically force a 10 minute cool down period. Make sure you do not re-strike the lamp any sooner than 2 minutes into this cool down period since hot re-strikes reduce lamp life.

Item	Description
Type	Xenon Short Arc Lamp
Power (software adjustable)	CXL-14M (1.4kW) 1000W min.(50%), 1430W nom., 1600W max. (110%)
	CDXL-18SD (1.8kW) 1000W min.(50%), 1800W nom., 1900W max. (110%)
	CDXL-20SD (2.0kW) 1000W min.(50%), 2000W nom., 2100W max. (110%)
	CDXL-23S (2.3kW) 1000W min.(50%), 2200W nom., 2300W max. (110%)
Average Life	CDXL-14M - 3000 hours
	CDXL-18SD - 1500 hours
	CDXL-20SD - 1500 hours
	CDXL-23S - 1000 hours
Wait time between lamp strikes	2 minutes minimum
Warm up time to full brightness	20 minutes maximum

Physical Specifications

Item	Description
Size (L x W x H) (without lens, with feet at minimum length)	665 mm (26.18 inches) x 688 mm (27.08 inches) x 395 mm (15.55 inches)
Weight	As installed with lens: 55 kg (121 lbs)
	Shipping (includes packaging) 65 kg (143 lbs)
Operating Position	Rotation about projection axis ± 15 degrees maximum
	Tilt of projection axis from horizontal ± 15 degrees maximum

Regulatory

This product conforms to the following regulations related to product safety, environmental requirements and electromagnetic compatibility (EMC).

Safety

- CAN/CSA C22.2 No. 60950
- UL 60950
- IEC 60950-1
- EN60950

Electro-Magnetic Compatibility

Item	Description
Emissions	• FCC CFR47, Part 15, Subpart B, Class A - Unintentional Radiators • CISPR 22:EN 55022, Class A - Information Technology Equipment • ICES-3/NMB-3 (A)
Immunity	CISPR 24: EN55024 EMC Requirements - Information Technology Equipment

Environmental

- EU Directive (2011/65/EU) on the restriction of the uses of certain hazardous substances (RoHS) in electrical and electronic equipment and the applicable official amendments)
- EU Directive (2012/19/EU) on waste and electrical and electronic equipment (WEEE) and the applicable official amendment(s)
- Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) and the applicable official amendment(s).
- China Ministry of Information Industry Order No.39 (02/2006) on the control of pollution caused by electronic information products, hazardous substances concentration limits (SJ/T11363-2006), and the applicable product marking requirements (SJ/T11364-2006)

Certification Approvals

The product is designed to comply with the rules and regulations required for the product to be sold in various regional markets, including: USA, Canada, European Union, Argentina, Australia, New Zealand, Kuwait, China, Korea, Japan, India, Mexico, Ukraine, Russia, South Africa, and Saudi Arabia.

Environment

Operating Environment

Item	Description
Temperature	10°C to 35°C (50°F to 95°F)
Humidity (non-condensing)	20% to 80%
Altitude	0 - 3000 meters
Maximum ambient temperature	35°C

Non-Operating Environment

Item	Description
Temperature	-25°C to 65°C (-13°F to 149°F)
Humidity (non-condensing)	0% to 95%

Accessories

Standard (sold with product)

- Touch panel controller (TPC) with interface cable
- Set up guide
- Interconnect diagram
- Power cord

Accessories

Item	Description/Part Number
Zoom Lenses	• 1.2-1.75” DLPCine Zoom (108-350109-01-XX) • 1.3-1.75” DLPCine Zoom (108-320106-XX) • 1.39-1.9” DLPCine Zoom (108-327103-XX) • 1.5-2.2” DLPCine Zoom (108-329105-XX) • 1.75-2.4” DLPCine Zoom (108-321107-XX) • 1.9-3.0” DLPCine Zoom (108-328104-XX) • 2.4-3.9” DLPCine Zoom (108-322108-XX) • 3.9-6.5” DLPCine Zoom (108-323109-XX)
Rack Stand	108-416102-XX
Replacement Lamps	CDXL-14M (003-003066-XX) CDXL-18SD (003-002742-XX) CDXL-20SD (003-001976-XX) CDXL-23S (003-004769-XX)
Replacement Paper Air Filter	003-002311-XX
Replacement Washable Air Filter	003-004655-XX
Liquid Coolant Fill Service Kit	003-001837-XX
Extractor Adaptor Kit	119-103105-XX

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